

FORMAT FOR ANNUAL DEPARTMENT/CENTRE REPORT

(PERIOD: 1 APRIL 2016 – 31 MARCH 2017)

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: 40) 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 recognized 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 pursuing 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 pursued. 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 systems 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 interests of the lab include Imaging Genetics, Biomedical Signal/Image Processing, Multimodal Analysis, Computer Aided Diagnosis, 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 interrogans* 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 lab's research interest is in post-translational gene regulation by RNA binding proteins. During alternative splicing introns are spliced out in various ways from the precursor RNA, resulting in one gene producing several different mRNAs and protein products. The process of alternative splicing requires accurate selection of splice sites, which play a key factor in the generation of different transcripts. Several regulatory protein complexes take active part to aid in the selection of splice sites, like small nuclear ribonucleoprotein complexes containing U1, U2, U4/U6 and U5 subunits. The serine/arginine-rich protein family members (SR proteins) and SR-related proteins (SR-rps) also have the capability to assist in the splice site selection process. In addition, various other regulatory protein complexes might be involved in the alternative splicing process. In this regard, understanding the role of the subunits existing in the apoptosis and splicing associated protein (ASAP) complex during splice site selection are crucial to understand splicing dependent post-transcriptional steps of gene regulation.
- xxxiv. Ion Channels Laboratory (Dr. Piruthivi Sukumar):** Ion channels, ion permeable pores in the plasma membrane, are indispensable for virtually all cellular function in most, if not all, cells. Ion channels can be selective to a particular type of ion or may be non-selective, for example, they can allow all cations or anions or both. Among various ions, calcium (Ca²⁺), a ubiquitous signaling molecule, has been identified as an important factor for not only physiological cellular proliferation, growth, migration and secretion. The lab is interested in studying specific group of calcium permeable ion channels called store operated calcium channels. Owing to the recent discovery of various components of store operated channels, the knowledge is neither wide nor deep in their role in cancer when compared to other two types. Atherosclerotic vascular diseases are the primary cause of morbidity and mortality of numerous people worldwide. The lab is embarking in identifying molecular pathological mechanisms underlying occlusive vascular diseases with the ultimate goal of finding novel drug targets. Also, diabetes greatly enhances the occurrence and progression of occlusive vascular diseases. Hence the lab's interest also lies in elucidating the effect of diabetes on vascular dysfunction. Various cells like vascular smooth muscle cells, endothelial cells and macrophages play important roles in initiation, progression and complications of atherosclerotic occlusive vascular diseases. The lab is analyzing SOCE in these cells.
- xxxv. Prof. R. Swaminathan Laboratory:** The research interests of the lab include (i) Protein Aggregation: Protein aggregation is a common symptom associated with several neurodegenerative diseases like Alzheimer's and Parkinson's. The molecular mechanism responsible for protein aggregation in neuronal cells and subsequent neuronal death is not yet understood. The lab uses biophysical techniques like fluorescence spectroscopy, atomic force microscopy along with biochemical approaches like protein activity to monitor the growth of aggregates in real time. Currently, the lab is exploring various maneuvers to inhibit the progress of aggregation as part of the strategy to understand the molecular mechanism of this phenomenon. (ii) Macromolecular Crowding inside living cells: Macromolecular crowding refers to the presence of large concentration (300-400 mg/ml) of macromolecules like nucleic acids, proteins or membranes inside a cell cytoplasm, mitochondrial matrix or red blood cell. The consequence of such crowding on simple biochemical events like enzyme catalysis is not yet clear. The lab has artificially mimicked cellular crowding inside a test tube using inert polymers like dextrans and Ficolls in a range of sizes from 15 kDa to 2000 kDa and in the concentration range 0-30 % w/w. The lab has investigated the influence of such crowding on the activity of enzymes like alkaline phosphatase and acetylcholine esterase. (iii) Intrinsically Disordered Proteins: A significant fraction of eukaryotic proteome (~30%) consists of proteins that are either partially or fully disordered. Such proteins lack ordered tertiary structure in their purified state at neutral pH. Interestingly, these proteins have functions in cell cycle control, regulation of transcription/ translation and so on. The lab is interested in approaches to quantify the disorder in these proteins using both computational and experimental techniques.
- xxxvi. 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.

- xxxvii. **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.
- xxxviii. **Malaria Research Group (Dr. Vishal Trivedi):** The research interests of the lab include Anti-malarial Drug Discovery, Immunotoxicity studies in Macrophages, Regulation of Innate Immune Response, Endothelial Cells-RBC cytoadherence during Cerebral Malaria, Designing immunostimulatory and Anticancer agents
- xxxix. **Computational lab:** The computational lab is used for carrying out the Bioinformatics and Computational Biology Lab, a lab course of the B. Tech. curriculum
- xl. **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 2016 – 31 March 2017:

Sl. No.	Equipment	Make & Model	Qty.
1.	(-80) Ultra Low Temp. freezer	Make: Eppendorf Ultra Low Temperature Freezer Model: U410- Upright (Part No.: U9260-0001)	1
2.	Vacuum concentrator	Make: Thermo Fisher Scientific Model: Savant SPD1010P1	1
3.	Water Purification System (Buy back)	Make: Merck Millipore Model: Elix Ref. 3 Kit and Milli Q Ref. Kit	1
4.	Spectrophotometer	Make: Shimadzu, Model: UV-1800	1
5.	Centrifuge	Make: Sartorius, Model: Centrisart G-26C	1
6.	Micro-Nano litre Spectro	Make: IMPLIN, Model: Nanophotometer NP80-Mobile	1
7.	Stereozoom Microscope with Photography attachment	Make: Olympus Model: SZX16	1
8.	Real Time PCR	AB Biosystems	1
9.	Cell Imaging System	Cytel GE Healthcare	1
10.	Electroporator	BioRad	1
11.	Flow cytometer	BD, USA	1
12.	Rheometer	Anton Paar, USA	1
13.	3D Bioprinter	Biotics, USA	1

5. **Major Areas of Research and Development:** Cell signaling, Systems Biology, Protein Biochemistry, Molecular Biology, Immuno Parasitology, 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 2016 – 31 March 2017:

- i. Developed a targeted drug delivery system using a toxin. Diphtheria toxin is a dreaded toxin and causes Diphtheria. It attacks specific cells in human body by binding to Diphtheria toxin receptors present on cell surface. Subsequently, the toxin enters the cell and causes toxicity. We have truncated this toxin and made a recombinant protein. This protein binds to the specific cells but does not cause toxicity. We have used this new protein to deliver drug-loaded nanoparticles specifically to cells that has diphtheria toxin receptors on cell surface.
- ii. LdBPK_070020 (Conserved hypothetical protein) knocked out *Leishmania donovani* showed significant retardation of growth and infectivity.

- iii. Dihydroorotase an enzyme of pyrimidine biosynthetic pathway was characterized biochemically and the inhibitors of dihydroorotase were employed to study the pyrimidine pathway (*de novo* and salvage) of *L. donovani* parasite.
- iv. CAAX prenyl protease II was found as a potential drug target against *Leishmania donovani*. CAAX prenyl protease II knocked out parasite showed significant decrease in growth and infectivity.
- v. Methionine aminopeptidase 2 (MAP2) was found to be a key regulator of apoptotic like cell death in *Leishmania donovani*. Miltefosine is only oral drug for Leishmaniasis in the market and it shows apoptotic like cell death in parasite. TNP-470 a drug that specifically inhibit MAP2 was used with miltefosine to prove the importance of MAP2 in apoptotic like cell death by evaluating the DNA fragmentation pattern and caspase 3/7 protease assay.
- vi. The “*Biomaterial and Tissue Engineering*” lab has developed an implantable “bioartificial pancreas” prototype for sustained delivery of insulin and “smart wound dressings” specifically targeted for diabetic patients. Further, “human skin” grafts for burn injuries and small diameter “human blood vessels” for bypass surgery patients have been developed. These products are of advanced level as compared to existing technologies in the market. The lab is further working on developing transplantable “human corneas” for vision restoration and “Bioartificial liver” for detoxification. To combat back pain, cartilage and bone degeneration, the lab is developing “intervertebral disc” for slip disc patients and “bone/cartilage implants” for patients with soft tissue/bone damage.
- vii. Isolation and identification of two novel stains SLAJ731 and SLAJ732 from a core sample of Assam oil field
- viii. Bio-sorbent comprising encapsulated *Agrobacterium fabrum* (SLAJ731) and iron oxide nanoparticles for removal of crude oil co-contaminant, lead Pb (II)
- ix. Low molecular weight synthetic amphiphiles and their metal complexes have been developed for antibacterial and antibiofilm applications. The delivery of these bioactive agents has been accomplished by using biocompatible nanomaterials. In another research endeavor, small molecule ligands have been employed as sensors for anions having healthcare implications. The target analyte has been detected both in solution as well as in live cells using imaging tools.
- x. Developed novel DNA aptamer against the biomarkers *Plasmodium falciparum* glutamate dehydrogenase for malaria diagnosis.
- xi. A combinatorial method is developed for the first time to elucidate the specific interactions between aptamer and the target protein.
- xii. A novel label free spectrophotometric detection of malarial biomarker HRP-II following an indicator displacement assay has been developed. The detection method was reproduced in a microfluidic paper based analytical device. The device detects HRP-II within 5 min with LOD of 30 ± 9.6 nM.
- xiii. In addition to the well acclaimed requirement of C-rich regions in the DNA sequence, the presence of suitable hairpin structure is essential to confer stable fluorescent AgNC. The study signifies the tentative size of the ring and length of the stem on the formation and stabilization of AgNC in the ssDNA scaffolds and hence, it may be considered as a guideline in selecting ssDNA candidates for developing AgNC. Further, the developed AgNC in ssDNA scaffolds has been exploited to detect NAD^+ quantitatively in solution with high sensitivity and specificity.

7. Research Projects:

3) New Sponsored Projects (Total No:24)

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. In Lakh)	Co-Investigator	Duration
Dr. B. Anand	Mapping the hierarchical participation of assembly factors during ribosome assembly	DBT	97.96	-	3 yrs
Dr. Biplab Bose	Diphtheria toxin derived proteins for possible therapeutic uses	SERB (DST)	47.38	Dr. Bhubaneswar Mandal	3 years (2016-2019)
Prof. Rakhi Chaturvedi	Mapping Yellow Mosaic Virus (YMV) tolerance trait loci in <i>Vigna radiata</i> (L) Wilczek using doubled	DBT, New Delhi	68.90	Dr. Soom Nath Raina	2017 – 2020

	haploids				
Dr. Nitin Chaudhary	Investigations into structural organization and curvature-dependent membrane binding of alpha synuclein	DBT	63.23 to IITG (Project in collaboration with RCB Gurgaon and RCU, Belagavi)	Dr. Vibin Ramakrishnan	2017-2020
Dr. Ajaikumar B Kunnumakkara	Liposome Encapsulated Azadiradione for Triple Negative Breast Cancer Treatment	DST	6.3	Dr. Piruthivi Sukumar	2016-2018
Dr. Ajaikumar B Kunnumakkara	Development of Novel Akt/mTOR Inhibitors for Oral Cancer Treatment	DBT	149.36	--	2017-2020
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	DBT	52.99	Dr. Madhumita Roy	2017-2020
Dr. Manish Kumar	Study on the Caseinolytic proteases of <i>Leptospira interrogans</i> , a promising target for treating bacterial infection	SERB, DST	70.18	Dr. Shankar Prasad Kanaujia	2016-2019
Dr. Biman B Mandal	North east silk biomaterial based injectable hydrogels for drug delivery and tissue engineering	DBT	134.052	NIL	2016-2019
Dr. Biman B Mandal	Northeast silk based bioengineered vascular conduits	DBT	72.04	Dr. P. Sukumar	2017-2020
Dr. Shirisha Nagotu	Organelle dynamics and cellular ageing in yeast	DBT	85	Dr. Avinash Kale – CEBS, Mumbai & Dr. Rajkumar Thummer, IITG	3 years
Dr. Shirisha Nagotu	Peroxisome and inter-organelle communication in yeast	DST-SERB	32	Dr. Rajkumar Thummer	3 years
Prof. Kannan Pakshirajan	Hydrogenogenic carbon monoxide conversion under mesophilic condition using anaerobic granular sludge biomass for biodesulphurization	DBT	72.83	Prof. G. Pugazenthi	3 years
Dr. Lalit Pandey	Mechanistic Insight of Shear Induced Aggregation of Proteins and the Effect of Transition Metal Ions	SERB	46.32	NA	3
Dr. Kusum K. Singh	To investigate how ASAP complex interface with splicing and connects EJC.	DST-SERB	42.69	Dr. S.P. Kanaujia	3 yrs. (2016-2019)
Dr. Rajkumar P. Thummer	Direct reprogramming of human fibroblasts to functional cardiomyocytes for cell therapy	DST-SERB	40.12	Dr. Shirisha Nagotu	3 years
Dr. Rajkumar P.	Generation of transgene-free	DBT	85.28	Dr. Shirisha	3 years

Thummer	human induced pluripotent stem cells using non-genetic approaches for cell therapeutic applications			Nagotu; Dr. Nibedita Lenka (NCCS, Pune)	
Dr. Shankar Prasad Kanaujia	Understanding the mechanism of ABC-type metal sequestering proteins: structure-based novel drug development against human pathogens	DBT-Twin	73.55 (52.23 for IITG and 22.32 for NCCS Pune)	Dr. Vikash Kumar Dubey	3 years
Dr. Shankar Prasad Kanaujia	Structural investigation of sugar ABC transporters in Mycobacterium tuberculosis and thermophiles: applications to the development of drug carriers and biosensors	DBT	126.384	-	3 years
Prof. Gurvinder Kaur Saini (Parent Institute) Dr. Anoop Kumar and Dr. Sachin Suresh Suroshe (Collaborating Institute (IARI))	Engineering Entomopathogenic fungi, Metarhizium anisopliae and Beauveria bassiana to express heterologous insect specific toxins	DBT (Twinning)	54.54 (Total) 34.48 (IITG)		3 Years
Dr. Bithiah Grace Jaganathan	Study of RhoA Signaling in Bone Metastasis of Breast Cancer	SERB	40.55	-	3 years
Dr. Anil M. Limaye	Investigations into estrogen regulation of tumor cell derived ECM remodeling genes and the role of key transcription factors	DBT (Twinning)	84.09 (Total) 54.82 (IITG)	Dr. Ashish Anand	3 years
Prof. Arun Goyal	Cloning, expression, biochemical and <i>in vitro</i> analysis of therapeutic chondroitin lyase and oligosaccharides from <i>Pedobacter saltans</i> .	CSIR	19.71	Dr. A.B. Kunnumakkara	3 Years
Dr. Senthilkumar Sivaprakasam	Metabolic engineering of Bacillus megatherium for enhanced production of D(-) pantothenic acid and its application for the development of functional foods	DBT	36.73	Dr. Anil Mukund Limaye	3 years

b) Ongoing Sponsored Projects (Total No: 28)

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dr. B. Anand	Mechanistic Insights into the Functional Landscape of Sensory and Regulatory RNAs	DST-SERB	29.96	-	3 yrs
Dr. B. Anand	Mechanistic Insights into the Adaptation Stage of CRISPR-Cas Immune System	DBT	43.23	-	3 yrs

Dr. B. Anand	“Molecular Mechanism of Ribosome Assembly in Bacteria”	DBT	70.202	-	3 yrs
Dr. Biplab Bose	Design Principles in the Molecular Network of an Oncofetal Protein	DBT	84.23	Dr. S. S. Ghosh	5 years (2016 - 2021)
Dr. Biplab Bose	Investigation to Understand Cell Signaling in Noisy Environment	ICMR	36.67	Dr. S. S. Ghosh	3 years (2016-2019)
Prof. Rakhi Chaturvedi	In vitro production of doubled haploids in Tea (<i>Camellia sinensis</i> L.)	DBT, New Delhi	64.58	Dr Vishal Trivedi	2014-2017
Dr. Vikash Kumar Dubey	Unit of excellence in Molecular and Biochemical Parasitology: Investigation on evolutionary pressure for unique redox metabolism of <i>Leishmania</i> parasite	DBT	105.55	Dr. Manish Kumar	2014-2017
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	DBT	25.66	Dr. Anil Saikia, Chemistry	2015-2017
Dr. Vikash Kumar Dubey	Identification of novel drug targets of <i>Leishmania donovani</i> : Studies on CAAX prenyl protease I and II of the pathogen	DBT	73.69	Dr. Shankar Prasad Kanaujia	2015-2018
<p>Project Title: “ DBT Programme Support on Fundamental Molecular Investigations in Biotechnology - Phase II” Implemented at BSBE</p> <p>* Under the DBT programme support, One Core grant for infrastructure support and Four R &D grants for individual PIs have been sanctioned.</p> <p>Faculty members involved: Prof S.S. Ghosh, Prof. P. Goswami, Dr. B. Bose Prof. A Ramesh and Prof. L. Sahoo</p>					
Prof. S.S. Ghosh (Project coordinator)	DBT Programme Support on Fundamental Molecular Investigations in Biotechnology - Phase II	DBT DBT Twinning with Delhi University	Total Amount : 723.04 Lakhs (it includes the entire project containing one Core-II and four R&D grants)	Prof. P. Goswami Prof. L. Sahoo Dr. B. Bose Prof. A. Ramesh	2016 onwards
Breakup of the individual project under programme Support		Breakup of the individual project under programme Support			
Prof. S.S. Ghosh (Project coordinator)	CORE –II grant		248.76 Lakhs (amount sanctioned for the Core-II grant)	Prof. P. Goswami Prof. L. Sahoo Dr. B. Bose	

				Prof. A. Ramesh	
Prof. S.S. Ghosh (PI)	Investigation on the Molecular Mechanism of Nanomaterial-Cellular Interactions to Develop Potential Therapeutics.		89.09 Lakhs (amount sanctioned for the R&D grant-I)	Dr. B. Bose Prof. A. Ramesh	
Prof. P. Goswami (PI)	Studies and Application of Redox Enzymes for Bioelectronics Devices		145.34 Lakhs (amount sanctioned for the R&D grant-II)	Prof. S. S. Ghosh	
Dr. B. Bose (PI)	Design Principles in the Molecular Network of an Oncofetal Protein		84.23 Lakhs (amount sanctioned for the R&D grant-III)	Prof. S. S. Ghosh	
Prof. L. Sahoo (PI)	Development of Abiotic Stress Resilient Tropical Pulses Through Tailoring of ABA Receptor Genes		155.62 Lakhs (amount sanctioned for the R&D grant-IV)	Dr. B. Bose	
Prof. Siddhartha Sankar Ghosh (PI)	Novel nanoscale materials targeted towards antimicrobial and anticancer activities	DBT Twinning with Delhi University	145.86 Lakhs	Prof. Arun Chattopadhyay Dr. Biplab Bose	2016 onwards
Prof. Pranab Goswami	Studies on structure of enzymes and their interaction with nanostructured materials for bioelectronics devices and other applications (Implemented in the centre for energy)	DBT India	473.42	Prof. V. K. Dubey Prof. P. Mahanta	4 years
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	DBT	76.0	Dr. Madhumita Roy	2014-2017
Dr. Biman B Mandal	Silk2Heal.	(DBT-SWEDEN) International grant	74.70	Dr. P. Sukumar	2014-2017
Dr. Biman B Mandal	Electrospun silk bioglass scaffold for interfacial tissue engineering	DST-UKIERI International grant	16.68	Dr. R. Konwarh	2015-2017
Dr. Biman B Mandal	Stem Cell Based Bioengineering of Annulus Fibrosus in an Intervertebral Disc model using North-East Silk Biomaterials.	DST	54.50	NIL	2013-2017
Dr. Biman B	Development of novel tissue	DBT	56.96	Dr. P. Sukumar	2014-

Mandal	engineered silk biomaterial based wound dressing patch for diabetic foot ulcers.			Dr. N. Chaudhary	2017
Dr. Biman B Mandal	Understanding the role of cellular cross talks for cartilage tissue repair using a 3D co-culture tissue model.	DBT	37.06	Dr. S. Sivaprakasam	2013-2017
Dr. Biman B Mandal	Bioartificial Pancreas to Treat Diabetes.	DST	35.00	NIL	2013-2018
Dr. Lalit Pandey	Thermodynamics of Protein Aggregation in Bulk Solution and in the presence of Surfaces	DST	35	NA	5
Dr. R. Swaminathan	Investigating the role of protein dynamics on the function of few disordered proteins	Biotech Consortium India Ltd.	98.20	None	3 years
Dr. Anand Tiwari (Mentor: Dr. Ranjan Tamuli)	Functional characterization and role of TMSF2 , a NRAMP family member , in the life cycle of <i>Neurospora crassa</i>	DST-SERB	31.50	-	3 years
Dr. Shankar Prasad Kanaujia	Understanding the mechanism of substrate delivery through solute-binding proteins related to ABC transporters	DST	47.19	None	4 years
Prof. Arun Goyal	DBT-PAN-IIT Center for Bioenergy (No. BT/EB/PAN IIT/2012) 1. Improvement of hydrolytic enzymes by protein engineering for higher activity and SSF of plant carbohydrates to ethanol (PI) 2. Development of <i>Clostridium</i> sp. as a cell factory for butanol production: Metabolic & biochemical engineering approach. (Co-PI)	DBT	92.08 (AG) 174 (IITG) 225 (Overall)	Dr. D. Das	5 Years
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 Years
Dr. Priyadarshi Satpati	Structural and thermodynamic basis of translational fidelity in prokaryotic cells – A Structure based computational study	DST-SERB	20.43		3 Years
Dr. Anil M. Limaye	Investigations into estrogen regulation of Cystatin A expression in breast cancer cells and its role in proliferation and migration	DBT	24.85	Dr. Sachin Kumar	3 years
Dr. Anil M. Limaye	A multifaceted research program to investigate the role of the G-protein coupled estrogen receptor (GPR30) in the normal and neoplastic breast: molecular investigations using <i>in vitro</i> , <i>in vivo</i> and clinical approaches	DBT (Twinning)	78.85 (Total) 39.95 (IITG)	Dr. Sachin Kumar	3 years

c) Completed Sponsored Projects (Total No: 15)

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dr. B. Anand (PI, IITG) Prof. S. Ramaswamy (PI, inStem)	Molecular Mechanism of Target Recognition and Cleavage by the CRISPR-Cas Bacterial Immune System	DBT	122.96	-	3yrs
Dr. B. Anand	Structural and Functional Characterization of Adaptation Stage of CRISPR-Cas System in Mycobacterium tuberculosis	DBT	59.182	Dr. Nitin Chaudhary	3yrs
Dr. Nitin Chaudhary	Structural organization of huntingtin exon 1 fibrils	DST-SERB	23.8	-	2014-2017
Prof. Pranab Goswami	Development of Bioelectrodes for Biofuel Cell Applications. (Implemented in the centre for energy)	MNRE India	33.72	Prof. P. Mahanta	3 years
Dr. Ajaikumar B Kunnumakkara	An Investigation of the Therapeutic Potential of Butein, Isolated from Toxicodendron vernicifluum Against Human Oral Squamous Cell Carcinoma	DST	22.55	--	2013-2016
Dr. Manish Kumar	Modulation of gene expression in <i>Leptospira interrogans</i> exposed to human catecholamine hormone	SERB, DST	23.5	None	2013-2016
Dr. Manish Kumar	Deciphering the role and architecture of CRISPR/Cas defense system in <i>Leptospira interrogans</i>	DBT	47.95	Dr. Shankar Prasad Kanaujia	2013-2016
Dr. Biman B Mandal	Stimulation of stem cell differentiation on silk fiber reinforced composite with tunable strength and degradation towards enhanced osteogenesis.	DST	23.00	NIL	2013-2016
Dr. Biman B Mandal	Bioengineered silk vascular grafts for blood vessel engineering.	DAE - BRNS	17.00	NIL	2012-2015
Dr. Biman B Mandal	Mechanically strong silk composite matrices for bone tissue engineering.	ICMR	10.00	NIL	2012-2015
Dr. Shankar Prasad Kanaujia	Structural and functional studies of translation initiation factors from <i>Pyrococcus horikoshii</i> OT3	DBT	52.90	Dr. Vikash Kumar Dubey	3 years
Dr. Shankar Prasad Kanaujia	Elucidation of the substrate delivery and specificity mechanism of solute-binding proteins cognate to the ABC transporters	DST	24.00	None	3 years
Prof. Arun Goyal	Synthesis, structure and application analyses of glucans from hyper-producing LAB	Department of Biotechnology (DBT)	26.65	NA	2 years

	strains from North-east Indian microbial diversity	New Delhi			
Dr. Bithiah Grace Jaganathan	Study of Cancer Promoting Role of CD90/THY1 in Leukemia Associated Stroma	DBT	25	Dr. Anil M Limaye	3 years
Dr. Bithiah Grace Jaganathan	BMP signalling in osteolytic bone metastasis of breast cancer	ICMR	20	Dr. Anil M Limaye Dr. Gayatri Gogoi (AMCH)	2 years

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

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
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9. Research Publications

International and National Journal

Total No. of International Journal: 160

Total No. of National Journal: 03

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	Yoganand K N R, Sivathanu R, Nimkar S, Anand B	Asymmetric Positioning of Cas1-2 Complex and Integration Host Factor Induced DNA Bending Guide the Unidirectional Homing of Protospacer in CRISPR-Cas Type I-E system	Nucleic Acids Research	2017	45		367	381
2	Sharma H, Anand B	Fluorescence Bimolecular Complementation Enables Facile Detection of Ribosome Assembly Defects in <i>Escherichia coli</i>	RNA Biology	2016	13		872	882
3	Mahesh Agarwal M, Amaresh Kumar Sahoo, Biplab Bose	Receptor-Mediated Enhanced Cellular Delivery of Nanoparticles Using Recombinant Receptor-Binding Domain of Diphtheria Toxin.	Molecular Pharmaceutics	2017	14	1	23	30
4	Vijay Kumar Mishra, Ruchira Bajpai and Rakhi Chaturvedi*	An efficient and reproducible method for development of	In Vitro Cell and Developmental Biology – Plant	2017	DOI 10.1007/s11627-017-9811-z	-	1	10

		androgenic haploid plants from in vitro anther cultures of <i>Camellia assamica</i> ssp. <i>assamica</i> (Masters)						
5	Radhika Rajendran, Balaji Sitthu Narashimman, Vishal Trivedi and Rakhi Chaturvedi*	Isolation and quantification of antimalarial N-alkylamides from flower-head derived in vitro callus cultures of <i>Spilanthes paniculata</i>	Journal of Bioscience and Bioengineering	2017	doi.org/10.1016/j.jbiosc.2017.02.001	-	1	9
6	Radhika Rajendran and Rakhi Chaturvedi*	Screening and optimizing media constituents for enhanced production of medicinal N-alkylamide Deca-2E,6Z,8E-trienoic acid isobutylamide from dedifferentiated in vitro cell lines of <i>Spilanthes paniculata</i>	Biocatalysis and Agricultural Biotechnology	2017	9	-	95	102
7	Vibha Sinha, N. Arul Manikandan, Kannan Pakshirajan* and Rakhi Chaturvedi	Continuous removal of Cr (VI) from wastewater by phytoextraction using <i>Tradescantia pallida</i> plant based vertical subsurface flow constructed wetland system.	International Biodeterioration & Biodegradation	2017	119	-	96	103
8	Karabi Saikia, Yalavarthi Durga Sravani, Vibin Ramakrishnan and Nitin Chaudhary	Highly potent antimicrobial peptides from N-terminal membrane-binding region of <i>E. coli</i> MreB	Scientific Reports	2017	7	-	42994	
9	Ruchika Bhardwaj, Ritesh Kumar, Sanjeev Kumar Singh, Chandrabose Selvaraj and Vikash Kumar Dubey*	Understanding the importance of conservative hypothetical protein LdBPK_070020 in <i>Leishmania donovani</i> and its role in subsistence	Archives of Biochemistry and Biophysics,	2016	596		10	21

		of the parasite.						
10	Shalini Singh and Vikash Kumar Dubey	Quantitative proteome analysis of <i>Leishmania donovani</i> under spermidine starvation.	Plos One	2016	11	4		
11	Shyamali Sarma, Vikash K Dubey and Vijayanand Suryakant Moholkar	Kinetic and thermodynamic analysis (with statistical optimization) of hydrogen production from crude glycerol using <i>Clostridium pasteurianum</i> .	Journal of Hydrogen Energy	2016	41		1997 2	1998 9
12	Ruchika Bhardwaj, Sanjeev Kumar Singh and Vikash Kumar Dubey	. Localization studies on LdBPK_070020, a conserved protein, of <i>Leishmania donovani</i> .	Journal of Vector Borne Diseases	2016	53		375	378
13	Ritesh Kumar, Pratyajit Mohapatra and Vikash Kumar Dubey	Exploring realm of proteases of <i>Leishmania donovani</i> genome and gene expression analysis of proteases under apoptotic condition .	Journal of Proteomics & Bioinformatics	2016	9		200	208
14	Kartikeya Tiwari, Ritesh Kumar and Vikash Kumar Dubey	Biochemical characterization of dihydroorotase of <i>Leishmania donovani</i> : Understanding pyrimidine metabolism through its inhibition.	Biochimie	2016	131		45	53
15	Shilpa N. Patere, Pankaj O. Pathak, Anil Kumar Shukla, Rajesh Kumar Singh, Vikash Kumar Dubey, Miten J. Mehta, Anand G. Patil, Vikram Gota, Mangal S. Nagarsenker	Surface-Modified Liposomal Formulation of Amphotericin B: In vitro Evaluation of Potential Against Visceral Leishmaniasis.	AAPS PharmSciTech	2017	DOI: 10.1208/s12249-016-0553-8			
16	Sudipta Ghosh, Rajesh K Singh, Vikash Kumar Dubey and Latha	Antileishmanial Activity of Labdane Diterpenes	Letters in Drug Design and Discovery	2017	14		119	124

	Rangan	Isolated from <i>Alpinia nigra</i> Seeds.						
17	Sitrarasu Vijaya Prabhu, Kartikeya Tiwari, Venkatesan Suryanarayanan, Vikash Kumar Dubey* and Sanjeev Kumar Singh	Exploration of potent molecules against CAAX prenyl protease I of <i>Leishmania donovani</i> through Pharmacophore based virtual screening approach.	Combinatorial Chemistry & High Throughput Screening	2017	DOI: 10.2174/1386207320666170120164515			
18	Shyamali Sarma, Avinash Anand, Vikash Kumar Dubey, V.S. Moholkar	Metabolic flux network analysis of hydrogen production from crude glycerol by <i>Clostridium pasteurianum</i> .	Bioresource Technology	2017	http://doi.org/10.1016/j.biortech.2017.03.168			
19	Ruchika Bhardwaj, Mousumi Das, Shalini Singh, Adarsh Kumar Chiranjivi, Sitraraau Vijaya Prabhu, Sanjeev Kumar Singh and Vikash Kumar Dubey	Evaluation of CAAX prenyl protease II of <i>Leishmania donovani</i> as potential drug target: infectivity and growth of the parasite is significantly lowered after the gene knockout.	European Journal of Pharmaceutical Sciences	2017	102		156	160
20	Ritesh Kumar, Kartikeya Tiwari and Vikash Kumar Dubey	Methionine aminopeptidase 2 is a key regulator of apoptotic like cell death in <i>Leishmania donovani</i>	Scientific Reports	2017	7	1	95	
21	Tamanna Bhuyan, Amit Kumar Singh, Deepanjalee Dutta, Aynur Unal, Siddhartha Sankar Ghosh, and Dipankar Bandyopadhyay	Magnetic Field Guided Chemotaxis of iMushbots for Targeted Anticancer Therapeutics	ACS Biomaterials Science & Engineering	2017	DOI: 10.1021/acsbiomaterials.7b00086			
22	Sharmila Narayanan, Pallab Sanpui, Lingaraj Sahoo & Siddhartha Sankar Ghosh	Tobacco phytaspase: Successful expression in a heterologous system.	Bioengineered	2017	DOI: 10.1080/21655979.2017.1292187		1	5
23	Sharmila Narayanan, Pallab Sanpui, Lingaraj	Heterologous expression and functional characterization of	International Journal of Biological Macromolecules	2017	95		288	293

	Sahoo & Siddhartha Sankar Ghosh	phytaspase, a caspase-like plant protease.						
24	Deepanjalee Dutta, Arun Chattopadhyay, and Siddhartha Sankar Ghosh	Cationic BSA Templated Au-Ag Bimetallic Nanoclusters As a Theranostic Gene Delivery Vector for HeLa Cancer Cells	ACS Biomaterials Science & Engineering	2016	2	11	2090	2098
25	Archita Ghoshal, Upashi Goswami, Asif Raza, Arun Chattopadhyay and Siddhartha Sankar Ghosh	Recombinant sFRP4 bound chitosan–alginate composite nanoparticles embedded with silver nanoclusters for Wnt/ β -catenin targeting in cancer theranostics	RSC Advances	2016	6		85763	85772
26	Vanitha S, Chaubey N, Ghosh SS, Sanpui P	Recombinant human granulocyte macrophage colony stimulating factor (hGM-CSF): Possibility of nanoparticle-mediated delivery in cancer immunotherapy.	Bioengineered	2016	8	2	120	123
27	Sharmila Narayanan, Pallab Sanpui, Lingaraj Sahoo & Siddhartha Sankar Ghosh	Unravelling the potential of a new uracil phosphoribosyltransferase (UPRT) from <i>Arabidopsis thaliana</i> in sensitizing HeLa cells towards 5-fluorouracil	International Journal of Biological Macromolecules	2016	91		310	316
28	Bandhan Chatterjee, Amarendra Kumar Sahoo, Siddhartha Sankar Ghosh and Arun Chattopadhyay	Interactive luminescent gold nanocluster embedded dsDNA and cisplatin as model nanoparticles for cancer theranostics	RSC Advances	2016	6		113053	113057
29	Amarendra Kumar Sahoo, Upashi	Silver Nanocluster Embedded	ACS Biomaterials Science & Engineering	2016	2	8	1395	1402

	Goswami, Deepa njalee Dutta, Subhamoy Banerjee, Arun Chattopadhyay, and Siddhartha Sankar Ghosh	Composite Nanoparticles for Targeted Prodrug Delivery in Cancer Theranostics						
30	Archita Ghoshal, Siddhartha Sankar Ghosh	Antagonizing canonical Wnt signaling pathway by recombinant human sFRP4 purified from E. coli and its implications in cancer therapy.	Molecular and Cellular Biochemistry	20 16	418	1	119	135
31	Neha Arora, Siddhartha Sankar Ghosh	Functional Characterizations of Interactive Recombinant PTEN-Silica Nanoparticles for Potential Biomedical Applications	RSC Advances	20 16	6		1149 44	1149 54
32	Priyanki Das, Madhuri Das, Somasekhar R. Chinnadayala, Irom Manoj Singha, Pranab Goswami*	Recent advances on developing 3rd generation enzyme electrode for biosensor applications	Biosensors and Bioelectronics,	20 16	79	-	386	397
33	Mrinal Kumar Sarma, Sharbani Kaushik, Pranab Goswami*.	Cyanobacteria: A metabolic power house for harvesting solar energy to produce bio-electricity and biofuels	Biomass and Bioenergy,	20 16	90	-	187	201
34	Mallesh Santhosh, Somasekhar R. Chinnadayala, Naveen K. Singh, Pranab Goswami	Human serum albumin-stabilized gold nanoclusters act as an electron transfer bridge supporting specific electrocatalysis of bilirubin useful for biosensing applications,	Bioelectrochemistry	20 16	111	-	7	14
35	Priyamvada Jain, Babina Chakma, Naveen Kumar Singh, Sanjukta Patra, Pranab Goswami*	Aromatic surfactant as aggregating agent for aptamer-gold nanoparticle based detection of <i>Plasmodium</i>	Molecular Biotechnology,	20 16	58	-	497	508

		lactate dehydrogenase.						
36	Sharbani Kaushik, Mrinal K Sarma, Phurpa Dema Thungon, Mallesh Santhosh, Pranab Goswami*	Thin films of silk-fibroin and its blend with chitosan strongly promote biofilm growth of <i>Synechococcus</i> sp. BDU 140432.	Journal of Colloid and Interface Science,	2016	479	-	251	259
37	Ankana Kakoti and Pranab Goswami*	Multifaceted analyses of the interactions between human heart type fatty acid binding protein and its specific aptamers,	BBA General Subject	2017	1861	-	3289	3299
38	Priyamvada Jain, Smita Das, Babina Chakma, Pranab Goswami*,	Aptamer-graphene oxide for highly sensitive dual electrochemical detection of Plasmodium lactate dehydrogenase,	Analytical Biochemistry	2016	514	-	32	37
39	Babina Chakma, Priyamvada Jain, Naveen K. Singh and Pranab Goswami*.	Development of an indicator displacement based detection of malaria targeting HRP-II as biomarker for application in point-of-care settings.	Analytical Chemistry	2016	88	-	10316	10321
40	Priyamvada Jain, Babina Chakma, Sanjukta Patra, Pranab Goswami*	Hairpin stabilized fluorescent silver nanoclusters for quantitative detection of NAD ⁺ and monitoring NAD ⁺ /NADH based enzymatic reactions.	Analytica Chimica Acta	2017	956	-	48	56
41	Preety Vatsyayan and Pranab Goswami	Highly Active and Stable Large Catalase Isolated from a Hydrocarbon Degrading <i>Aspergillus terreus</i> MTCC 6324	Enzyme Research	2016	Article ID 4379403 (Open access) doi. org/10.1155/2016/4379403		1	8
42	Sharbani Kaushik, Mrinal K. Sarma and Pranab	FRET-guided surging of cyanobacterial photosystems	Journal of Materials Chemistry A	2017	DOI 10.1039/C7TA01137G			

	Goswami*	improves and stabilizes current in photosynthetic microbial fuel cell						
43	Padmavathi G, Roy NK, Bordoloi D, Arfuso F, Mishra S, Sethi G, Bishayee A, Kunnumakkara AB.	Butein in health and disease: A comprehensive review	Phytomedicine	2017	25		118	127
44	Thakur KK, Saini J, Mahajan K, Singh D, Jayswal DP, Mishra S, Bishyae A, Sethi G, Kunnumakkara AB.	Therapeutic implications of toll-like receptors in peripheral neuropathic pain	Pharmacol Res	2017	115		224	232
45	Maruthanila VL, Elancheran R, Kunnumakkara AB, Kabilan S, Kotoky J	Recent development of targeted approaches for the treatment of breast cancer	Breast Cancer	2017	2		191	219
46	Kunnumakkara AB, Bordoloi D, Padmavathi G, Monisha J, Roy NK, Prasad S, Aggarwal BB	Curcumin, the golden nutraceutical: multitargeting for multiple chronic diseases	Br J Pharmacol	2016	doi: 10.1111/bph.13621			
47	Monisha J, Padmavathi G, Roy NK, Deka A, Bordoloi D, Anip A, Kunnumakkara AB	NF-κB Blockers Gifted by Mother Nature: Prospectives in Cancer Cell Chemosensitization	Curr Pharm Des	2016	22		4173	4200
48	Roy NK, Deka A, Bordoloi D, Mishra S, Kumar AP, Sethi G, Kunnumakkara AB	The potential role of boswellic acids in cancer prevention and treatment	Cancer Lett	2016	377		74	86
49	Roy NK, Bordoloi D, Monisha J, Padmavathi G, Kotoky J, Golla R, Kunnumakkara AB.	Specific Targeting of Akt Kinase Isoforms: Taking the Precise Path for Prevention and Treatment of Cancer.	Curr Drug Targets	2017	18		421	435
50	Monisha J, Roy NK, Bordoloi D, Kumar A, Golla	Nuclear Factor Kappa B: A Potential Target to	Curr Drug Targets	2017	18		232	253

	R, Kotoky J, Padmavathi G, Kunnumakkara AB.	Persecute Head and Neck Cancer						
51	Singh P, Verma D, Backstedt BT, Kaur S, Kumar M, Smith AA, Sharma K, Yang X, Azevedo JF, Gomes-Solecki M, Buyuktanir O, Pal U	Borrelia burgdorferi BBI39 paralogs, targets of protective immunity, reduce pathogen persistence either in hosts or in the vector	J Infect Dis.	2017	doi:10.1093/infdis/jix036			
52	Sudhir Morla, Pankaj Deka, Sachin Kumar	Isolation of novel variants of infectious bursal disease virus from different outbreaks in Northeast India	Microbial Pathogenesis	2016	93		131	136
53	Shyam Singh Dahiya, Sachin Kumar, Sharat Chandra Mehta, Shirish D. Narnaware, Raghvendar Singh, Fateh Chand Tuteja	Camelpox: A brief review on its epidemiology, current status and challenges	Acta Tropica	2016	158		32	38
54	Sudhir Morla, Aditi Makhija, Sachin Kumar	Synonymous codon usage pattern in glycoprotein gene of rabies virus	Gene	2016	584		1	6
55	Rakesh Kumar, Nagendra N. Barman, Elina Khatoon, Sachin Kumar	Development of single dilution immunoassay to detect E2 protein specific classical swine fever virus antibody	Veterinary Immunology and Immunopathology	2016	172		52	54
56	Vasudevan Gowthaman, Monika Koul, Sachin Kumar	Avian infectious laryngotracheitis: A neglected poultry health threat in India	Vaccine	2016	34	36	4276	4277
57	Barman NN, Bora DP, Khatoon E, Mandal S, Rakshit A, Rajbongshi G, Depner K, Chakraborty A, Kumar S	Classical Swine Fever in Wild Hog: Report of its Prevalence in Northeast India	Transbound Emerg Dis.	2016	63	5	540	547
58	Morla S, Shah M, Kaore M, Kurkure N, Kumar S	Molecular characterization of genotype XIIIb Newcastle disease	Microb Pathog.	2016	99		83	86

		virus from central India during 2006-2012: Evidence of its panzootic potential						
59	Mohapatra JK, Rout M, Kumar S	Genome Sequencing: Practice to Prophecy.	Journal of Immunology and Immunopathology.	2016	18	2	73	85
60	Makhija A, Kumar S	Characterization of duck plague virus stability at extreme conditions of temperature, pH and salt concentration	Biologicals.	2017	45		102	105
61	Das M, Kumar S	Evidence of independent evolution of genotype XIII Newcastle disease viruses from India.	Archives of Virology	2017	162	4	997	1007
62	Ganar K, Shah M, Kamdi B, Kurkure N, Kumar S	Molecular characterization of chicken anemia virus outbreaks in Nagpur province, India from 2012-2015.	Microb Pathog.	2017	102		113	119
63	Gogoi P, Ganar K, Kumar S	Avian paramyxovirus: A brief review.	Transbound Emerg Dis.	2017	64	1	53	67
64	Ganar K, Das M, Raut AA, Mishra A, Kumar S	Emergence of a deviating genotype VI pigeon paramyxovirus type-1 isolated from India.	Archives of Virology	2017	doi: 10.1007/s00705-017-3340-2			
65	Khatoon E, Barman NN, Deka M, Rajbongshi G, Baruah K, Dekha N, Bora DP, Kumar S	Molecular characterization of classical swine fever virus isolates from India during 2012-14.	Acta Trop.	2017	170		184	189
66	Dahiya SS, Kumar S, Mehta SC, Singh R, Nath K, Narnaware SD, Tuteja FC	Molecular characterization of Camelpox virus isolates from Bikaner, India: Evidence of its endemicity.	Acta Trop.	2017	171		1	5
67	M JC, Reardon PJ, Konwarh R, Knowles JC,	Mimicking Hierarchical Complexity of the	ACS Applied Materials and Interfaces	2017	9		8000	8013

	Biman B Mandal.	Osteochondral Interface Using Electrospun Silk-Bioactive Glass Composites.	IF 7.14.					
68	Dimple Chouhan, Bijayshree Chakraborty, Samit K. Nandi and Biman B Mandal.	Role of Non-Mulberry Silk Fibroin in Deposition and Regulation of Extracellular Matrix Towards Accelerated Wound Healing.	Acta Biomaterialia IF 6.00	20 17	48		157	174
69	Rocktotpal Konwarh, Bibhas K. Bhunia and Biman B. Mandal.	Opportunities and Challenges in Exploring Indian Nonmulberry Silk for Biomedical Application.	Proceedings of the Indian National Science Academy (Invited)	20 17	83		85	101
70	Rocktotpal Konwarh, Prerak Gupta and Biman B Mandal.	Silk Microfluidics for advanced biotechnological applications: A progressive review.	Biotechnology Advances IF: 9.84	20 16	34		845	858
71	Prerak Gupta, Mimi Adhikary, Joseph Christakiran M, Manishekhar Kumar, Nandana Bhardwaj, Biman B. Mandal.	Biomimetic, Osteoconductive Non-mulberry Silk Fiber Reinforced Tricomposite Scaffolds for Bone Tissue Engineering	ACS Applied Materials and Interfaces IF 7.14	20 16	8		3079 7	3081 0
72	Manishekhar Kumar, Jeannin M Coburn, David L. Kaplan and Biman B Mandal	Immuno-informed 3D silk-biomaterials for tailoring biological responses.	ACS Applied Materials and Interfaces IF 7.14	20 16	8		2931 0	2932 2
73	Yogendra Pratap Singh, Nandana Bhardwaj and Biman B Mandal.	Potential of Agarose/Silk Fibroin Blended Hydrogel for In Vitro Cartilage Tissue Engineering	ACS Applied Materials and Interfaces IF 7.14	20 16	8		2123 6	2124 9
74	Prerak Gupta, Manishekhar Kumar, Nandana Bhardwaj, Jadi Praveen Kumar, C. S. Krishnamurthy, Samit K. Nandi and Biman B. Mandal.	Mimicking form and function of native small diameter vascular conduits using mulberry and non-mulberry patterned silk films.	ACS Applied Materials and Interfaces IF 7.14	20 16	8		1587 4	1588 8

75	Ali D. Malay, Kenjiro Yazawa, Hiroe Watanabe, Ryota Sato, Nao Ifuku, Hiroyasu Masunaga, Takaaki Hikima, Juan Guan, Biman B. Mandal, Siriporn Damrongsakkul, Keiji Numata.	Relationships between physical properties and sequence in silkworm silks	Scientific Reports IF 5.22	20 16	6		2757 3	2757 3
76	Nandana Bhardwaj, Yogendra Pratap Singh, Dipali Devi, Raghuram Kandimalla, Jibon Kotoky and Biman B. Mandal.	Potential of silk fibroin/chondrocyt e constructs of muga silkworm Antheraea assamensis for cartilage tissue engineering.	Journal of Materials Chemistry B IF 4.87	20 16	4		3670	3684
77	Sudesna Chakravarty, Nandana Bhardwaj, Biman B Mandal and Neelotpal Sensarma.	Silk Fibroin- Carbon Nanoparticle composite Scaffolds: A Cost Effective Supramolecular 'Turn Off' Chemiresistor for Nitro aromatic Explosive Vapours.	J Material Chemistry C IF 5.06	20 16	4		8920	8929
78	Saket K. Singh, Bibhas K. Bhunia, Nandana Bhardwaj N, Sween Gilotra, Biman B Mandal.	Reloadable Silk- Hydrogel Hybrid Scaffolds for Sustained and Targeted Delivery of Molecules.	Mol Pharm. IF 4.34	20 16	13		4066	4081
79	Rituparna Duarah, Yogendra P Singh, Prerak Gupta, Biman B Mandal and Niranjan Karak.	High performance bio-based hyperbranched polyurethane/carb on dot-silver nanocomposite: A rapid self- expandable stent	Biofabrication IF 4.70	20 16	8		0450 13	0450 13
80	Mimi Adhikary, Prerak Gupta, Manishekhar Kumar, Salma Jasmine, Nandana Bhardwaj, Dimple Chouhan and Biman B. Mandal.	Hydroxyapatite- silk fiber-silk fibroin tri- composite scaffolds for bone tissue engineering.	European cells & materials IF 4.56	20 16	31		18	18
81	Jadi P. Kumar, Nandana Bhardwaj and	Cross-Linked Silk Sericin-Gelatin 2D and 3D	RSC Advances	20 16	6		1051 25	1051 36

	Biman B Mandal.	Matrices for Prospective Tissue Engineering Application.	IF 3.28					
82	Manishekhar Kumar, Deepak Jain, Nandana Bhardwaj, Prerak Gupta, Samit K. Nandi and Biman B. Mandal.	Native honeybee silk membrane: A potential matrix for tissue engineering and regenerative medicine.	RSC Advances IF 3.28	20 16	6		5439 4	5440 3
83	Dimple Couhan, Samit K. Nandi and Biman B. Mandal.	Non-mulberry silk fibroin based smart nanofibrous wound dressing for chronic cutaneous ulcers.	European cells & materials IF 4.56	20 16	31		239	239
84	Lakshminath Kundanati, Saket Kumar, Biman B. Mandal, Tejas G Murthy, Namrata Gundiah, Nicola M. Pugno.	Fabrication and mechanical characterization of hydrogel infused network silk scaffolds for tissue engineering.	Int. J. Molecular Sci. IF 3.257	20 16	17		1631	1631
85	Ashim Malakar, Himadree Tanaya Biswal, K. Anki Reddy, Manishekhar Kumar, Biman B. Mandal, G. Krishnamoorthy.	Aggregation Induced Enhanced Emission of 2-(2'-Hydroxyphenyl) benzimidazole: A Combined Experimental and Simulation Approach.	Photochemical and Photobiological Sciences IF 2.23	20 16	15		937	948
86	Yogendra Pratap Singh, Joseph Christakiran M, Bibhas Kumar Bhunia and Biman B Mandal.	Bi-phasic silk scaffolds for osteochondral tissue engineering.	European cells & materials IF 4.56	20 16	31		326	326
87	Nisha Shankhwar, Manishekhar Kumar, Biman B. Mandal and A. Srinivasan.	Novel polyvinyl alcohol-bioglass 45S5 based composite nanofibrous membranes as bone scaffolds.	Materials Science and Engineering: C IF 3.42	20 16	69		1167	1174
88	Rituparna Duarah, Yogendra Pratap Singh, Biman B. Mandal and Niranjana Karak.	Sustainable Starch Modified Polyol Based Tough Biocompatible Hyperbranched Polyurethane with Shape Memory Attribute.	New Journal of Chemistry IF 3.27	20 16	40		5152	5163
89	Satyabrat Gogoi, Manishekhar Kumar, Biman B.	A renewable resource based carbon dot	RSC Advances	20 16	6		2606 6	2607 6

	Mandal and Niranjan Karak.	decorated hydroxyapatite nanohybrid and its fabrication with waterborne hyperbranched polyurethane for bone tissue engineering.	IF 3.28					
90	Prerak Gupta, Manishekhar Kumar, Nandana Bhardwaj, Jadi Praveen Kumar, C. S. Krishnamurthy, Samit K. Nandi and Biman B. Mandal.	Bioengineered silk vascular grafts for coronary artery bypass surgery.	European cells & materials IF 4.56	20 16	31		231	231
91	Nisha Shankhwar, Manishekhar Kumar, Biman B. Mandal, P.S. Robi and A. Srinivasan.	Electrospun polyvinyl alcohol-polyvinyl pyrrolidone nanofibrous membranes for interactive wound dressing applications.	J. Biomat. Sci. Poly. Edition IF 1.648	20 16	27		247	262
92	Deb R and Nagotu S	Versatility of peroxisomes: An evolving concept	Tissue and Cell	20 17	49	2	209	226
93	Maurya PK, Kumar P, Nagotu S, Chand S, and Chandra P	Multi-target detection of oxidative stress biomarkers in quercetin and myricetin treated human red blood cells	RSC Adv	20 16	6		5319 5	5320 2
94	Sinha, V., Pakshirajan, K., Arul Manikandan, N., & Chaturvedi	Continuous removal of Cr(VI) from wastewater by phytoextraction using <i>Tradescantia pallida</i> plant based vertical subsurface flow constructed wetland system	International Biodeterioration & Biodegradation	20 17	119		96	103
95	Kumar, S., Prabhu, A. A., Dasu, V. V., & Pakshirajan, K.	Batch and fed-batch bioreactor studies for the enhanced production of	Preparative Biochemistry and Biotechnology	20 17	47	1	74	80

		glutaminase-free l-asparaginase from <i>Pectobacterium carotovorum</i> MTCC 1428						
96	L. Goswami, R. V. Kumar, N. Arul Manikandan, K. Pakshirajan and G. Pugazhenth	Simultaneous polycyclic aromatic hydrocarbon degradation and lipid accumulation by <i>Rhodococcus opacus</i> for potential biodiesel production	Journal of Water Process Engineering	20 17	17		1	10
97	L. Goswami, M. M. Tejas Namboodiri, R. V. Kumar, K. Pakshirajan and G. Pugazhenth	Biodiesel production potential of oleaginous <i>Rhodococcus opacus</i> grown on biomass gasification wastewater	Renewable Energy	20 17	105		400	406
98	Kakati, J., Gogoi, T.K., Pakshirajan, K.	Production of biodiesel from Amari (<i>Amoora Wallichii</i> King) tree seeds using optimum process parameters and its characterization	Energy Conversion and Management	20 17	135		281	290
99	L. Goswami, R. V. Kumar, N. Arul Manikandan; K. Pakshirajan and G. Pugazhenth	Anthracene biodegradation by oleaginous <i>Rhodococcus opacus</i> for potential biodiesel application,	Polycyclic aromatic Compounds	20 17	DOI:10.1080/10406638.2017.1302971			
100	Gopi Kiran, M., Pakshirajan, K., Gopal Das	Heavy metal removal from multicomponent system by sulfate reducing bacteria: Mechanism and cell surface characterization	Journal of Hazardous Materials	20 17	324		62	70
101	Gopi Kiran, M., Pakshirajan, K., Gopal Das	An overview of sulfidogenic biological reactors for the simultaneous treatment of sulfate and heavy metal rich wastewater	Chemical Engineering Science	20 17	158	2	606	620

10 2	Gopi Kiran, M., Pakshirajan, K., Gopal Das	A new application of anaerobic rotating biological contactor reactor for heavy metal removal under sulfate reducing condition	Chemical Engineering Journal	20 17	321		67	75
10 3	Singh, M., Pakshirajan, K., & Trivedi, V. A	Study on combined effect of Methylene blue and Sodium anthraquinone-2-sulphonate on inactivation efficiency of Escherichia coli and Enterococcus hirae.	International Journal of ChemTech Research	20 16	9	6	614	619
10 4	Singh, M., Pakshirajan, K., & Trivedi, V.	Photo-inactivation of Escherichia coli and Enterococcus hirae using methylene blue and sodium anthraquinone-2-sulphonate: effect of process parameters	<i>3 Biotech</i>	20 16	6	2	176	
10 5	Kumar, R. V., Goswami, L., Pakshirajan, K., & Pugazhenth, G.	Dairy wastewater treatment using a novel low cost tubular ceramic membrane and membrane fouling mechanism using pore blocking models	<i>Journal of Water Process Engineering</i>	20 16	13		168	175
10 6	Rene, E.R., Pakshirajan, K., Lens, P.N.L.	Special Issue on Biofilm Engineering for Heavy-Metal Removal and Recovery	Journal of Environmental Engineering	20 16	142	9	1	4
10 7	Arun, S., Manikandan, N. A., Pakshirajan, K., Pugazhenth, G., & Syiem, M. B.	Cu (II) removal by Nostoc muscorum and its effect on biomass growth and nitrate uptake: A photobioreactor study	International Biodeterioration & Biodegradation	20 16	119		111	117
10 8	Sahoo, N. K., Pakshirajan, K., & Ghosh, P. K.	Evaluation of 4-Chlorophenol Biodegradation by Arthrobacter chlorophenolicus A6 in an Upflow Packed Bed	Advanced Science Letters	20 16	22	2	519	523

		Reactor						
109	Abshar Hasan, Lalit M. Pandey	Kinetic studies of attachment and re-orientation of octyltriethoxysilane for formation of self-assembled monolayer on a silica substrate	Materials Science and Engineering C	2016	68		423	429
110	Sakshi Tiwari, Abshar Hasan, Lalit M. Pandey	A novel bio-sorbent comprising encapsulated <i>Agrobacterium fabrum</i> (SLAJ731) and iron oxide nanoparticles for removal of crude oil co-contaminant, lead Pb(II)	Journal of Environmental Chemical Engineering	2017	5		442	452
111	Ajeet Singh, Poulami Datta, Lalit M. Pandey	Deciphering the mechanistic insight into the stoichiometric ratio dependent behavior of Cu(II) on BSA fibrillation	International Journal of Biological Macromolecules	2017	97		662	670
112	Gaurav Jerath, Prakash Kishore Hazam, Sashi Shekhar, Vibin Ramakrishnan,	Mapping the Geometric Evolution of Protein Folding Motor	PLOS one	2016	11	10	1	16
113	Sajitha Sasidharan, Prakash Kishore Hazam, and Vibin Ramakrishnan	Symmetry-Directed Self-Organization in Peptide Nanoassemblies through Aromatic π - π Interactions	The Journal of Physical Chemistry B	2017	121	2	404	411
114	Anil Kumar, Ranjit Ranbhor, Kirti Patel, Vibin Ramakrishnan*, Susheel Durani. 2016	Automated Protein and Peptide Design: Landmarks and Operational Principles.	Progress in Biophysics and Molecular Biology.	2017	DOI: 10.1016/j.pbiomolbio.2016.12.002			
115	Thiyagarajan, D., Das, G.* and Ramesh, A.*	Extracellular DNA-targeting nanomaterial for effective elimination of biofilm.	ChemNanoMat	2016	2	9	879	887

116	Samanta, S., Dey, P., Ramesh, A.* and Das, G.*	A solo fluorogenic probe for real-time sensing of SO_3^{2-} and $\text{SO}_4^{2-}/\text{HSO}_4^-$ in aqueous medium and live cells by distinct turn-on emission signals.	Chemical Communications	2016	52	68	10381	10384
117	D Yadav, L Barbora, D Bora, S Mitra, L Rangan* P Mahanta*	An assessment of duckweed as a potential lignocellulosic feedstock for biogas production	International Biodeterioration & Biodegradation	2017	119		437	447
118	P Singh, S Mitra*, D Majumdar, P Bhattacharyya, A Prakash, P Borah, A Paul, L Rangan*	Nutrient and enzyme mobilization in earthworm casts: A comparative study with addition of selective amendments in undisturbed and agricultural soils of a mountain ecosystem	International Biodeterioration & Biodegradation	2017	119		253	259
119	S Ghosh, RK Singh, VK Dubey, L Rangan*	Antileishmanial activity of labdane diterpenes isolated from <i>Alpinia nigra</i> seeds	Letters in Drug Design and Discovery	2017	14		119	124
120	S Basak, V Kesari, AM Ramesh, L Rangan*, A Parida, S Mitra	Assessment of genetic variation among nineteen turmeric cultivars of Northeast India- nuclear DNA content and molecular marker approach.	Acta Physiologia Plantarum	2017	39		45	
121	P Gupta, L Rangan*, TV Ramesh, M Gupta	Comparative analysis of contextual bias around the translation initiation sites in plant genomes	Journal of Theoretical Biology	2016	404		303	311
122	A Singh, I Jahan, M Sharma, L Rangan* A Khare, AN Panda	Structural characterization, in silico studies and in vitro antibacterial evaluation of furanoflavonoid from Karanj.	Planta Medica Letters	2016	DOI: 10.1055/s-0042-105159			

12 3	S Das, A Singh, L Rangan*, C Jana*	Synthesis, in silico studies and in vitro evaluation for antioxidant and antibacterial properties of diarylmethylamines: A novel class of structurally simple and highly potent pharmacophore.	European Journal of Pharmaceutical Sciences	20 16	88		202	209
12 4	AM Ramesh, A Singh, RG Shelke, PT Scott, PM Gresshoff, L Rangan*	Identification of two genes encoding microsomal oleate desaturases (FAD2) from the biodiesel plant <i>Pongamia pinnata</i> L.	Trees	20 16	30	4	1351	1360
12 5	D Yadav, L Barbora, L Rangan*, P Mahanta*	Tea waste and food waste as a potential feedstock for biogas production.	Environmental Progress & Sustainable Energy	20 16	35	5	1247	1253
12 6	Deka, B. and Singh, K. K.	Multifaceted regulation of gene expression by ASAP complex and its components	Int. Jour. Biol. Sci.	20 17	13	5	545	560
12 7	Barman A., and Tamuli R.	The pleiotropic vegetative and sexual development phenotypes of <i>Neurospora crassa</i> arise from double mutants of the calcium signaling genes <i>plc-1</i> , <i>splA2</i> , and <i>cpe-1</i> .	Current Genetics	20 17	DOI 10.1007/s00294-017-0682-y [Epub ahead of print].			
12 8	Laxmi V., and Tamuli R.	The calmodulin gene in <i>Neurospora crassa</i> is required for normal vegetative growth, ultraviolet survival, and sexual development.	Archives of Microbiology	20 16	doi: 10.1007/s00203-016-1319-0			
12 9	Gohain D., Deka R., and Tamuli R.	Identification of critical amino acid residues and functional conservation of	Genetica	20 16	144	6	665	674

		the <i>Neurospora crassa</i> and <i>Rattus norvegicus</i> orthologues of neuronal calcium sensor-1.							
130	Tamuli R.	<i>Neurospora</i> : A scientific journey by the orange mold since 1843.	North East Bioline	2016			1	8	9
131	Mandal, S.K., Chandravanshi, M., Gogoi, P. and Kanaujia, S.P.	In silico characterization of TTHA0596: A potential Zn ²⁺ binding protein of ATP-binding cassette transporter	Gene Reports	2017	6			132	141
132	Jha, S., Kanaujia, S.P. and Limaye, A. M.	Direct inhibition of matrix metalloproteinase 2 (MMP-2) by (-)-epigallocatechin-3-gallate: a possible role for the fibronectin type II repeats	Gene	2016	593			126	130
133	Chandravanshi, M., Gogoi, P. and Kanaujia, S.P.	Computational characterization of TTHA0379: a potential glycerophosphocholine binding protein of Ugp ATP-binding cassette transporter.	Gene	2016	592			260	268
134	Srivastava, A., Gogoi, P., Deka, B., Goswami, S. and Kanaujia, S.P.	In silico analysis of 5'-UTRs highlights the prevalence of Shine-Dalgarno and leaderless-dependent mechanisms of translation initiation in bacteria and archaea, respectively	Journal of Theoretical Biology	2016	402			54	61
135	Vikky Rajulapati and *Arun Goyal	Molecular cloning, expression and characterization of family 8 carbohydrate esterase, pectin methylesterase (<i>CtPME</i>) from	Molecular Biotechnology (JIF 2.3)	2017	. DOI: 10.1007/s12033-017-9997-7				

		<i>Clostridium thermocellum</i> . Molecular Biotechnology						
136	Aruna Rani, Riwivo Baruah and *Arun Goyal	Physicochemical, antioxidant and biocompatible properties of chondroitin sulphate isolated from chicken keel bone for potential biomedical applications.	Carbohydrate Polymers (JIF 4.2)	2017	159	NA	11	19
137	Riwivo Baruah, Ndegwa H. Maina, Kati Katina, Riikka Juvonen and *Arun Goyal	Functional food applications of dextran from <i>Weissella cibaria</i> RBA12 from Pummelo (<i>Citrus maxima</i>).	International Journal of Food Microbiology (JIF 3.4)	2017	242	NA	124	131
138	Seema Patel and Arun Goyal	Chitin and chitinase: Role in pathogenicity, allergenicity and health.	International Journal of Biological Macromolecules (JIF 3.1)	2017	97		331	338
139	Ritesh S. Malani, Shubham Patil, Kuldeep, Sankar Chakma, Arun Goyal and Vijayanand Suryakant Moholkar	Mechanistic analysis of ultrasound-assisted biodiesel synthesis with Cu ₂ O catalyst and mixed oil feedstock using continuous (packed bed) and batch (Slurry) reactors.	Chemical Engineering Science (JIF 2.7)	2017	Doi: 10.1016/j.ces.2017.03.041	NA		
140	Aruna Rani, Seema Patel and *Arun Goyal	Chondroitin sulphate lyases: structure, function and application in therapeutics.	Current Protein and Peptide Science. (JIF 2.4)	2016	DOI: 10.2174/1389203718666170102112805.	NA		
141	Kedar Sharma, Arun Dhillon and *Arun Goyal	Insights into structure and reaction mechanism of mannanase.	Current Protein and Peptide Science. (JIF 2.4)	2016	DOI: 10.2174/1389203717666161013115724	NA		
142	Nadeem Akhtar, Arun Goyal and Dinesh Goyal	Characterization of microwave-alkali-acid pre-treated rice straw for optimization of ethanol production via simultaneous saccharification and fermentation (SSF).	Energy Conversion and Management. (JIF 4.8)	2016	141	NA	133	144

143	Soumyadeep Chakraborty, T. Jagan Mohan Rao and *Arun Goyal	Immobilization of recombinant pectate lyase from <i>Clostridium thermocellum</i> ATCC-27405 on magnetic nanoparticles for bioscouring of cotton fabric.	Biotechnology Progress (JIF 2.2)	20 16	DOI 10.1002/ btp.2379	NA		
144	Jagan Mohan Rao Tingirikari, Aruna Rani and *Arun Goyal	Synthesis of superparamagnetic nanoparticles and coating with dextran produced by dextransucrase of <i>Weissella cibaria</i> JAG8.	Journal of Polymer and the Environment (JIF 2.0)	20 16	DOI: 10.1007/ s10924-016-0836-x	NA		
145	Aanchal, Nadeem Akhtar, Kanika, Dinesh Goyal, Arun Goyal	Response surface methodology for optimization of microbial cellulase production.	Romanian Biotechnological Letters (JIF= 0.4)	20 16	21	5	1183 2	1184 1
146	Aruna Rani and Arun Goyal*	A new member of family 8 polysaccharide lyase Chondroitin AC lyase (<i>PsPL8A</i>) from <i>Pedobacter saltans</i> displays endo- and exolytic catalysis.	Journal of Molecular Catalysis B: Enzymatic (JIF 2.1)	20 16	134	NA	215	234
147	Arun Goyal, Shadab Ahmed, Kedar Sharma, Vikas Gupta, Pedro Bule, Victor D. Alves, Carlos M.G.A. Fontes* and Shabir Najmudin*	Molecular determinants of substrate specificity revealed by the structure of <i>Clostridium thermocellum</i> family 43_16 arabinofuranosidase.	Acta Crystallographica Section D. Structural Biology (JIF = 2.5)	20 16	D72		1281	1289
148	Filipe Freire [†] , Anil Kumar Verma [†] , Pedro Bule, Victor D. Alves, Carlos M.G.A. Fontes*, Arun Goyal and Shabir Najmudin*	Conservation in the mechanism of glucuronoxylan hydrolysis revealed by the structure of glucuronoxylanhydrolase (<i>CtXyn30A</i>) from <i>Clostridium thermocellum</i> .	Acta Crystallographica Section D, Structural Biology (JIF 2.5)	20 16	D72		1162	1173
149	Immacolata Venditto, Ana S. Luis, Maja G.	The complexity of the <i>Ruminococcus flavefaciens</i>	Proceedings of National Academy of Sciences (USA) (JIF 9.7)	20 16	113		7136	7141

	Rydahl, Julia Schückerl, Vânia O. Fernandes, Silvia Vidal Melgosa, Pedro Bule, Arun Goyal, Virginia M.R. Pires, Catarina G. Dourado, Luís M.A. Ferreira, Pedro M. Coutinho, Bernard Henrissat, J. Paul Knox, Arnaud Baslé, Shabir Najmudin, Harry J. Gilbert, William G. Willats and Carlos M.G.A Fontes	cellulosome reflects an expansion in glycan recognition.						
15 0	Qiao Shi, Yaxi Hou, Minna Juvonen, Päivi Tuomainen, Ilkka Kajala, Shraddha Shukla, Arun Goyal, Hannu Maaheimo, Kati Katina and Maija Tenkanen	Optimization of isomalto- oligosaccharide size-distribution by acceptor reaction of <i>Weissella confusa</i> dextransucrase and characterization of novel α -(1→2)- branched isomaltooligosac- charides	Journal of Agricultural and Food Chemistry (JIF 2.9)	20 16	64		3276	3286
15 1	Arupjyoti Borah, Shuchi Singh, Arun Goyal and *Vijayanand S. Moholkar	An assessment of invasive weeds as multiple feedstocks for biofuels production.	RSC Advances	20 16	6		4715 1	4716 3
15 2	Anil Kumar Verma and *Arun Goyal	A novel member of family 30 glycoside hydrolase subfamily 8 glucuronoxylan endo- β -1,4- xylanase (<i>CtXynGH30</i>) from <i>Clostridium</i> <i>thermocellum</i> orchestrates catalysis on arabinose decorated xylans.	Journal of Molecular Catalysis B: Enzymatic (JIF 2.1)	20 16	129		6	14
15 3	Nadeem Akhtar, Kanika, Alok	Surfactant assisted microwave-acid	Cellulose Chemistry and Technology	20 16	50	1	127	137

	Kumar Jain, Dinesh Goyal and Arun Goyal	pretreatment of leaf litter biomass for enhanced enzymatic release of sugars						
15 4	Seltanna Chalane, C'edric Delattre, Philippe Michaud, Andr'e Lebert, Christine Gardarin, Damini Kothari, Catherine Creuly, Arun Goyal, Aleš Štrancar,, Guillaume Pierre	Optimized endodextranase- epoxy CIM® Disk reactor for the continuous production of molecular weight- controlled prebiotic isomalto- oligosaccharides	Process Biochemistry (JIF 2.5)	20 17	DOI: 10.1016/j.procbio.2017.04.017			
15 5	Atul Kumar, Anshuman Bhanja, Jina Bhattacharyya, Bithiah Grace Jaganathan	Multiple roles of CD90 in cancer.	Tumor Biology	20 16	37	9	1161 1	1162 2
15 6	Dixcy Jaba Sheeba, J. M., Mohan, C. M., Hussain, M., Deb, G., Kumar, N., Limaye, A. M.	Estrogen- regulated extracellular matrix remodeling genes in MCF-7 breast cancer cells	Gene Reports	20 16	3		14	21
15 7	Arghya Sett, Bibhuti Bhusan Borthakur, Jagannath Dev Sharma, Amal Chandra Katakai, Utpal Bora	DNA Aptamer Probes for Detection of Estrogen Receptor α positive carcinomas	Translational Research (Mosby) IF: 4.557 (doi: 10.1016/j.trsl.2016.12.0 08.)	20 17	183		104	120
15 8	Arghya Sett Manoj Gadewar, Pragya Sharma, Manab Deka, Utpal Bora	Green synthesis of gold nanoparticles using aqueous extract of <i>Dillenia indica</i>	Advances in Natural Sciences: Nanoscience and Nanotechnology (IOP Publishing) IF: 1.52 (doi:10.1088/2043- 6262/7/2/025005)	20 16	7	2	1	8
15 9	Suradip Das, Alejandro Carnicer- Lombarte, James W Fawcett, Utpal Bora	Bio-inspired nano tools for neuroscience	Progress in neurobiology (Pergamon) IF: 13.177 (doi: 10.1016/j.pneurobio.201 6.04.008.)	20 16	142		1	22
16 0	Deepika Singh, Hasnahana Chetia, Debajyoti Kabiraj, Swagata Sharma, Anil Kumar, Pragya Sharma, Manab	A comprehensive view of the web- resources related to sericulture	Database (Oxford) IF: 2.627	20 16	doi: 10.1093/database/baw086.	baw0 86	1	31

	Deka and Utpal Bora							
161	Arghya Sett, BB Borthakur, Utpal Bora	Selection of DNA aptamers for extra cellular domain of human epidermal growth factor receptor 2 to detect HER2 positive carcinomas	Clinical and Translational Oncology (Springer) IF: 2.15	2017	doi: 10.1007/s12094-017-1629-y.		1	13
162	Hasnahana Chetia, Debajyoti Kabiraj, Deepika Singh, Ponnala Vimal Mosahari, Suradip Das, Pragya Sharma, Kartik Neog, Swagata Sharma, P. Jayaprakash, Utpal Bora	De novo transcriptome of the muga silkworm, <i>Antheraea assamensis</i> (Helfer)	Gene (Elsevier) IF: 2.319 (doi: 10.1016/j.gene.2017.02.021.)	2017	611		54	65
163	Debajyoti Kabiraj, Jonjyoti Kalita, Hasnahana Chetia, Deepika Singh, Utpal Bora	Expanding the frontiers of rice research through omics	Journal of Assam Science Society (ISSN 0587-1921)	2017	56	2	1	28

Conference/Workshop/Seminar/Symposia

Total No. of papers published in Conference Proceedings: 118

Format for submission of papers published in Conference Proceedings

Sl. No.	Authors	Paper Title	Name of Conference/ Workshop/ Seminar/ Symposia Proceedings	Year	Volume	Issue Number (If any)	Starting Page	Ending Page
1	Rakhi Chaturvedi and Peeyushi Verma	Anti-bacterial potential of calli induced from stem, flower and leaf explants of <i>Lantana camara</i> L.	38th Annual Meeting of the Plant Tissue Culture Association (India) and a National symposium on 'Plant Biotechnology: Current Perspectives on Medicinal and Crop Plants' organized by CSIR-IICB, Kolkata, India	2017	-	-	130	130
2	Rakhi Chaturvedi and Radhika Rajendran	Development of Substantial Biotechnological methods for Production of Pharmaceutically Active Biometabolites from the Genus <i>Spilanthes</i>	World Congress on In Vitro Biology, San Diego, California, USA	2017	-	-	63	63
3	Rakhi Chaturvedi and Vartika	Development of Reproducible Micropropagation	World Congress on In Vitro Biology, San Diego, California, USA	2017	-	-	79	79

	Srivastava	on Method and Screening of Bioactive Metabolites from <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. F. Thoms.						
4	Gundappa Saha, Bakulesh M Khamar and Vikash Kumar Dubey.	Role of host Caspase 1 in the progression of <i>Leishmania donovani</i> infection.	Cell Biology of Infection National Centre for Biological Sciences, TIFR, Bangalore, India	2016	13-14			
5	Prachi Bhalla, Anil Kumar Saikia and Vikash Kumar Dubey.	Synthesis of second generation of Antileishmanial drugs.	9th TCS Annual event and Flow Cytometry workshop on “Flow Application on Basic, Applied and Clinical Biology” (FABACTCS 2016). IIT Guwahati, Guwahati. Assam, India.	2016				
6	Ritesh Kumar and Vikash Kumar Dubey.	Understanding the role of methionine aminopeptidase 2 in programmed cell death of <i>Leishmania donovani</i> by studying the knockout mutants.	3rd International Conference on perspective of cell signaling and molecular medicine. Bose Institute, Kolkata.	2016				
7	Ritesh Kumar and Vikash Kumar Dubey	Effect of TNP-470 on the apoptotic processes of miltefosine treated <i>Leishmania donovani</i> .	57 th Annual conference of Association of Microbiologists of India & International Symposium on Microbes and Biosphere: What's New What's next. Gauhati University, Guwahati. Assam, India.	2016				
8	Ritesh Kumar and Vikash Kumar Dubey.	Mechanistic elucidation of apoptosis in <i>Leishmania</i> : the important role of noncaspase proteases	9 th TCS Annual event and Flow Cytometry workshop on “Flow Application on Basic, Applied and Clinical Biology” (FABACTCS 2016). IIT Guwahati, Guwahati. Assam, India.	2016				
9	Kartikeya Tiwari and Vikash Kumar Dubey	Investigating pyrimidine metabolism of <i>Leishmania donovani</i> through dihydroorotase mediated inhibition	9 th TCS Annual event and Flow Cytometry workshop on “Flow Application on Basic, Applied and Clinical Biology” (FABACTCS 2016), IIT Guwahati, Guwahati. Assam, India.	2016				
10	Kartikeya Tiwari and	Unraveling the role of L-	57th Annual conference of Association of Microbiologists of India & International	2016				

	Vikash Kumar Dubey.	asparaginase in the growth and infectivity of <i>Leishmania donovani</i> .	Symposium on Microbes and Biosphere: What's New What's Next. Gauhati University. Assam, India					
11	Kartikeya Tiwari and Vikash Kumar Dubey.	Role of aspartate metabolism in the growth and infectivity of <i>Leishmania donovani</i> .	3rd International Conference on perspective of cell signaling and molecular medicine. Bose Institute, Kolkata.	2016				
12	Archita Ghoshal, Upashi Goswami, Siddhartha Sankar Ghosh	Targeting Wnt pathway with Recombinant sFRP1 loaded Composite Nanoparticles for Cancer Therapy	3rd International Conference on Biotechnology and Bioinformatics	2016				
13	Neha Arora, Siddhartha Sankar Ghosh	Functional Stabilization of Recombinant PTEN onto Silica Nanoparticles for Potential Biomedical Applications	7th International Conference on Stem Cells and Cancer (ICSCC-2016): Proliferation, Differentiation and Apoptosis.	2016				
14	Deepanjalee Dutta, Arun Chattopadhyay, Siddhartha Sankar Ghosh	Silver nanoparticle-gold nanocluster impregnated chitosan nanocarrier for cancer theranostic application	International Conference on Functional Materials, IIT Kharagpur, India	2016				
15	Md Asif Raza, Siddhartha Sankar Ghosh	Therapeutic targeting of intercellular communication in cancer	7th International Conference on Stem Cells and Cancer (ICSCC-2016): Proliferation, Differentiation and Apoptosis.	2016				
16	Tamanna Bhuyan, Siddhartha Sankar Ghosh	Plant Tissue Based Self-Propelling Catalytic Biomotors: A Review	International Symposium on Micro- and Nanomachines, Schloss Herrenhausen, Hannover, Germany	2016				
17	Sunil kumar Sailapu, Deepanjalee Dutta, Arun Chattopadhyay, Siddhartha Sankar Ghosh	A bench top device for gene and protein analysis	Assam Biotech Conclave, Guwahati Biotech park	2017				

18	Deepanjalee Dutta, Arun Chattopadhyay, Siddhartha Sankar Ghosh	Au–Ag Bimetallic Nanoclusters embedded Cationic BSA nanocarrier for Suicide gene therapy and Bioimaging of HeLa cancer cells	National Seminar on Advances in Materials Science, Guwahati University	2017				
19	Pranab Goswami and Ankana Kakoti	Development of DNA aptamers against human heart type fatty acid binding protein for early detection of acute myocardial infarction	2nd World Congress on Bio Summit & Molecular Biology Expo, October 10-12, 2016 Dubai, UAE. J Biotechnol Biomater,	2016	Abstracts: DOI: 10.4172/2155-952X.C1.061	-		
20	Smita Das, Priyamvada Jain, Babina Chakma, Pranab Goswami,	Paper based electrochemical sensor for species specific detection of malaria.	4th International Conference on Advanced Nanomaterials and Nanotechnology (ICANN) organized by Centre for Nanotechnology, IIT Guwahati, held at IIT Guwahati	2016	ABSTRACT ID: J1034	-		
21	Priyamvada Jain, Babina Chakma, Sanjukta Patra, Pranab Goswami,	Template structure dependent bright red silver nanoclusters for NAD ⁺ detection in enzyme catalyzed reactions,	IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016), held at Indian Institute of Science Bangalore, India, December 11-15.	2016	Conference proceeding page No. 128	-		
22	Mrinal K. Sarma, M.G. Abdul Quadir, Rupam Bhaduri, Pranab Goswami,	Synechococcus sp BDU 140432 as anodic biocatalyst on polyaniline-poly pyrrole copolymer coated electrodes for biofuel cell applications,	IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) Indian Institute of Science Bangalore, held at Indian Institute of Science Bangalore, India, during December 11-15.	2016	Conference proceeding page No. 94.	-		
23	Babina Chakma, Priyamvada Jain, Pranab Goswami,	Development of indicator displacement based detection of malaria targeting HRP II as biomarker for point-of-care and analytical settings,	IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) held at Indian Institute of Science Bangalore, India, during December 11-15.	2016	Conference proceeding page No. 128	-		

24	Sharbani Kaushik, Pranab Goswami,	CdTe quantum dots decorated silk fibroin with graphene blend, enhances light to current conversion efficiency of <i>Synechococcus</i> sp. biofilm grown on graphite anode in photo-microbial fuel cell (oral presentation),	IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) held at Indian Institute of Science Bangalore, India, during December 11-15.	2016	Conference proceeding page No. 68	-		
25	Priyanki Das, Pranab Goswami	Fuel cell based methanol biosensor using biocompatible graphite conductive ink on paper surface,	IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) held at Indian Institute of Science Bangalore, India, during December 11-15.	2016	Conference proceeding page No. 128	-		
26	Phurpa Dema Thungon, Naveen Kumar Singh, Pranab Goswami,	Study of Peroxidase mimicking agents/ Nanoenzymes for development of alcohol biosensors,	IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) held at Indian Institute of Science Bangalore, India, during December 11-15.	2016	Conference proceeding page No. 128	-		
27	Aman Prakash and Manish Kumar	Characterization of a novel Cas5 protein of CRISPR-Cas type I-B in pathogenic <i>Leptospira interrogans</i> .	57 th Annual Conference of Association of Microbiologists of India and International symposium on "Microbes and Biosphere" in Gauhati University, Assam.	2016			379	379
28	Anusua Dhara and Manish Kumar	Cloning, expression and purification of Caseinolytic proteases of pathogenic <i>Leptospira interrogans</i> Copenhageni strain Fiocruz L1-130.	57 th Annual Conference of Association of Microbiologists of India and International symposium on "Microbes and Biosphere" in Gauhati University, Assam.	2016			307	307
29	Bithorai Basumatary and Manish Kumar	Investigation of biochemical characteristics of a core Cas protein in	57 th Annual Conference of Association of Microbiologists of India and International symposium on "Microbes and Biosphere" in Gauhati University, Assam.	2016			311	312

		CRISPR-Cas subtype-IC in <i>Leptospira interrogans</i> serovar Copenhageni strain Fiocruz L1-130.						
30	Karukriti Kaushik Ghosh and Manish Kumar	Modulation of gene expression of <i>Leptospira interrogans</i> exposed to catecholamines and its role in host immune evasion.	57 th Annual Conference of Association of Microbiologists of India and International symposium on “Microbes and Biosphere” in Gauhati University, Assam.	2016			320	321
31	Dr. Sachin Kumar	Reverse Genetics of Newcastle disease virus	New Avenues in microbiology and biotechnology challenges and prospects. Department of Microbiology, West Bengal State University.	2016			9	
32	Dr. Sachin Kumar	Reverse genetics of Newcastle Disease virus as an innovative tool for the development of recombinant vaccines.	Global Symposium on Animal Health and XXIX annual convention of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases. Department of Microbiology, Assam Agricultural University, Khanapara, Guwahati, Assam and ICAR, Rani, Assam.	2016			81	
33	Moushume Das, Sachin Kumar	Recombinant phosphoprotein based single serum dilution ELISA for rapid serological detection of Newcastle disease virus.	Global Symposium on Animal Health and XXIX annual convention of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases. Department of Microbiology, Assam Agricultural University, Khanapara, Guwahati, Assam and ICAR, Rani, Assam.	2016			180	
34	Barnali Nath, Sachin Kumar	Molecular characterization of Newcastle disease virus strains isolated from outbreaks in Northeast India during 2014-15.	Global Symposium on Animal Health and XXIX annual convention of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases. Department of Microbiology, Assam Agricultural University, Khanapara, Guwahati, Assam and ICAR, Rani, Assam.	2016			182	
35	Moushume Das, Sachin Kumar	Molecular Characterisation of an apoptotic strain of Newcastle disease virus from Northeast India.	Symposium on biology and molecular pathogenesis of viruses. Department of Microbiology and Cell Biology, Indian Institute of science, Bangalore.	2016			33	

36	Ketan Ganar, Sachin Kumar	Avian paramyxovirus type-1 isolates in pigeon from India: A possible event of recombination between genotype VI and XIII.	Symposium on biology and molecular pathogenesis of viruses. Department of Microbiology and Cell Biology, Indian Institute of science, Bangalore.	2016			38	
37	Sudhir Morla, Sachin Kumar	Molecular characterization and oncolytic activity of a newly isolated Newcastle disease virus isolate from North India	Symposium on biology and molecular pathogenesis of viruses. Department of Microbiology and Cell Biology, Indian Institute of science, Bangalore.	2016			49	
38	Manisha Shah, Sachin Kumar	Effect on NDV replication in Chicken embryo fibroblast upon overexpression of Viperin	57 th Annual Conference & International Symposium of Association of Microbiologists of India Gauhati University,Guwahati-781014	2016				
39	Milind Singh, Sachin Kumar	Interaction between IBDV and NDV in vitro using Chicken fibroblast cell line	57 th Annual Conference & International Symposium of Association of Microbiologists of India Gauhati University,Guwahati-781014	2016				
40	Barnali Nath Siraj A. Khan , Sachin Kumar	In vitro characterisation of Japanese encephalitis virus strain SA14-14-2: adaptation and propagation in baby hamster kidney cells	57 th Annual Conference & International Symposium of Association of Microbiologists of India Gauhati University,Guwahati-781014	2016				
41	Nakul Yadav, Sudhir Morla, Ajay Kumar, Sachin Kumar	Inhibition of Migration of Human Oral Cancer cells in presence of Newcastle Disease Virus Bareilly strain	57 th Annual Conference & International Symposium of Association of Microbiologists of India Gauhati University,Guwahati-781014	2016				
42	Moushumees Das, Sachin Kumar	Modulation of NDV replication in chicken embryo fibroblast following imadazole	57 th Annual Conference & International Symposium of Association of Microbiologists of India Gauhati University,Guwahati-781014	2016				

		treatment.						
43	Manisha Shah, Sachin Kumar	Viperin: A potential target for Newcastle disease virus Inhibition	“VIROCON 2016” Indian Institute of Horticultural Research, Bengaluru, Karnataka	2016				
44	Ketan Ganar, Nitin Vasantrao Kurkure, Sachin Kumar	Molecular characterization and phylogenomics of chicken anemia virus outbreak from Nagpur, India	“VIROCON 2016” Indian Institute of Horticultural Research, Bengaluru, Karnataka	2016				
45	Nakul Yadav, Sudhir Morla, Ajay Kumar, Sachin Kumar	Inhibition of Migration of Human Oral Cancer cells in presence of Newcastle Disease Virus Bareilly strain	“VIROCON 2016” Indian Institute of Horticultural Research, Bengaluru, Karnataka	2016				
46	Barnali Nath , Siraj A. Khan , Sachin Kumar	In vitro characterisation of Japanese encephalitis virus strain SA14-14-2: adaptation and propagation in baby hamster kidney cells	“VIROCON 2016” Indian Institute of Horticultural Research, Bengaluru, Karnataka	2016				
47	Milind Singh, Sachin Kumar	Interaction between IBDV and NDV in vitro using Chicken fibroblast cell line	“VIROCON 2016” Indian Institute of Horticultural Research, Bengaluru, Karnataka	2016				
48	Vibha Sinha, Kannan Pakshirajan, Rakhi Chaturvedi	Regeneration and reuse of <i>Tradescantia pallida</i> biomass for Cr(VI) removal from wastewater by biosorption	RECYCLE 2016 - International Conference on Waste Management, IIT Guwahati	2016				
49	L. Goswami, R. Vinoth Kumar, K. Pakshirajan and G. Pugazhenthii,	Batch biodegradation of polycyclic aromatic hydrocarbons (PAHs) in mixture using <i>Rhodococcus opacus</i>	National conference on Recent advancement in Environmental research, Center for the Environment, IIT Guwahati	2016				

50	L. Goswami, K. Pakshirajan and G. Pugazhenth	Biomass gasification effluent derived biochar for simultaneous lipid accumulation and anthracene biodegradation by <i>Rhodococcus opacus</i>	National conference on Solid waste management, Department of Economics, T. H. B. College, at Tyagbir Hem Baruah College, Jamugurihat, Sonitpur, Assam	2016				
51	L. Goswami, K. Pakshirajan and G. Pugazhenth	Simultaneous lipid accumulation and carotenoid production by oleaginous <i>Rhodococcus opacus</i> using biomass gasification wastewater in a batch stirred tank reactor	International symposium on “Microbes and Biosphere: What’s New What’s Next”, Gauhati University	2016				
52	L. Goswami, R. Vinoth Kumar, K. Pakshirajan and G. Pugazhenth	Industrial wastewater treatment using an indigenously built lost-cost ceramic membrane: Performance evaluation and mechanism	International Conference on Membrane Technology and its Applications, NIT Tiruchirappalli, Tamil Nadu	2017				
53	L. Goswami, R. Vinoth Kumar, K. Pakshirajan and G. Pugazhenth	An integrated batch biodegradation-microfiltration system for industrial wastewater treatment and biodiesel production using <i>Rhodococcus opacus</i>	International Conference on Recent Advancements in Chemical, Environmental & Energy Engineering, S. S. N. College of Engineering, Chennai	2017				
54	L. Goswami, K. Pakshirajan and G. Pugazhenth	Biodegradation of polycyclic aromatic compounds in a binary substrate system by <i>Rhodococcus opacus</i>	Indo- EU Workshop on “Microbial electrochemical technologies for sustainability: Fuels, Chemicals and Remediation”, CSIR-IICT, Hyderabad	2017				
55	L. Goswami, K. Pakshirajan and G. Pugazhenth	Optimization of fatty acid methyl esters production from <i>Rhodococcus</i>	National Seminar on Petroleum Biotechnology and Bioenergy, Tezpur	2017				

		<i>opacus</i> utilizing anthracene as the sole carbon source in a batch stirred tank reactor	University, Tezpur Assam					
56	M Gopi kiran, Kannan Pakshirajan and Gopal Das	Immobilized sulfate reducing bacteria for heavy metal removal from wastewater	ICWM- RECYCLE, IIT Guwahati	2016				
57	M Gopi kiran, Kannan Pakshirajan and Gopal Das	Sodium alginate immobilized sulfate reducing bacteria for batch and continuous removal of heavy metals	5 th International conference on research frontiers in Chalcogen cycle science and Technology, Goa, India	2016				
58	A. Sinharoy and K. Pakshirajan	Nanoparticle mediated enhanced biological carbon monoxide conversion using anaerobic microbial consortia	International conference of waste management, Recycle – 2016, IIT Guwahati	2016				
59	A. Sinharoy and K. Pakshirajan	Iron nanoparticle enhanced biodesulfurization with carbon monoxide utilizing bacteria	5 th International conference on research frontiers in Chalcogen cycle science and Technology, Goa, India	2016				
60	A. Sinharoy and K. Pakshirajan	Biological sulphate reduction with carbon monoxide utilizing bacteria	5 th International conference on research frontiers in Chalcogen cycle science and Technology, Goa, India	2016				
61	M.M.T. Namboodiri and K. Pakshirajan	Chitosan Production by <i>Aspergillus niger</i> using cheaply available Domestic Wastewater	ICWM- RECYCLE, IIT Guwahati	2016				
62	Surjith R. and K. Pakshirajan	Algae based lutein production from anaerobic digestate: a strategical	National conference on Recent advancement in Environmental research, Center for the Environment, IIT	2016				

		approach'	Guwahati					
63	Surjith R. and K. Pakshirajan	Carotenoid production from marine algae using cheaply available Anaerobic digestate	MACB - 2016, Bharathidasan University, Tamil Nadu	2016				
64	N. A. Manikandan and K. Pakshirajan	Polyhydroxybutyrate (PHB) production by <i>Ralstonia eutropha</i> using bean gum industry refuse as a cheap feedstock	3 rd International Conference on Challenges in Biotechnology and Chemical Engineering, Chidambaram, Tamil Nadu	2016				
65	Manoj Kumar, A. sinharoy, K. Pakshirajan	Simultaneous carbon monoxide conversion and sulfate reduction by immobilized anaerobic biomass: batch and continuous studies	Research conclave, IIT Guwahati	2017				
66	Manoj Kumar, A. sinharoy, K. Pakshirajan	Simultaneous carbon monoxide conversion and sulfate reduction by immobilized anaerobic biomass,	Association of Microbiologist of India (AMI), Guahati university, Assam	2016				
67	P. Datta, S. Tiwari, N. Kumar & L. M. Pandey,	Bioethanol Production from Waste Breads Hydrolysate Using <i>Saccharomyces cerevisiae</i>	International Conference on Waste Management "Recycle" 2016. Organized by Association of Civil Engineers (ACE) & Waste Management Research Group (WMRG) at Indian Institute of Technology, Guwahati, India-781039	2016			153	153
68	S. Tiwari, P. Datta & L. M. Pandey	Bioremediation of heavy metal (Lead) through bio-sorption using a novel adsorbent.	Recent Advancements in Environmental Research 2016 at Indian Institute of Technology, Guwahati, India-781039	2016			91	91
69	Abshar Hasan, Lalit M. Pandey	Formation of octyltriethoxysilane self-assembled monolayer on a silica substrate: A kinetic Study,	The 3rd Int'l Conference on Surface and Interface of Materials (SIM 2017), Engineering Information Institute (Engii) Bangkok, Thailand	2017			40	41

70	Abshar Hasan, Ajeet Singh and Lalit Pandey	Study on competitive protein adsorption on mono, mixed and hybrid self assembled monolayers	International conference on Advances in Biological Systems and Materials Science in NanoWorld (ABSMSNW-2017) Organized by Dept. Of Physics, Indian Institute of Technology Banaras Hindu University, Uttar Pradesh	2017	-	-	89	90
71	Gaurav Pandey, Jahnu Saikia, Sajitha Sasidharan and Vibin Ramakrishnan	Modulation of peptide based nano structure assembly with physical perturbants	International Conference on "Advances in Biological Systems and. Materials Science in NanoWorld"	2017	1	Not applicable	46	47
72	Prakash Kishore Hazam, Gaurav Jerath and Vibin Ramakrishnan	Design of antibiotic peptides employing peptido-mimetic approach.	Research conclave	2017	Not applicable	Not applicable	123	123
73	Sajitha Sasidharan Prakash Kishore Hazam Jahnu Saikia and Vibin Ramakrishnan	Symmetry as a design element in directing self organization of peptide nano-assemblies	International Conference on "Advances in Biological Systems and. Materials Science in NanoWorld"	2017	1	NA	84	84
74	PK Baruah, A Singh, L Rangan, AK Sharma, A Khare	Comparison of surface enhanced Raman scattering of silver and copper nanoparticles on furanoflavanoid karanjin.	IN: International Conference on Fibre Optics and Photonics. Optical Society of America	2016			Th4E.2	
75	Kumar A., Roy A., Gohain D., and Tamuli R.	Calcineurin- a serine/threonine protein phosphatase and its role in calcium signalling.	Research Conclave, IIT Guwahati 17-20 March.	2017				
76	Marak K. C.N., and Tamuli R.	Understanding the molecular mechanism of calmodulin and calcium/calmodulin-dependent kinases in <i>Neurospora crassa</i> .	Research Conclave, IIT Guwahati 17-20 March.	2017				
77	Ngiime D. S., and Tamuli R.	Cellular role of a Zinc transporter in <i>Neurospora crassa</i> .	Research Conclave, IIT Guwahati 17-20 March.	2017				

78	Gohain D., and Tamuli R.	Understanding the functions of neuronal calcium sensor-1 (NCS-1) of <i>Neurospora crassa</i> and its rat orthologue.	XL All India Cell Biology Conference & International Symposium on Functional Genomics and Epigenomics, Galav Sabhagar, Jiwaji University, Gwalior, November 17-19.	2016				
79	Kumar A., and Tamuli R.	Aspartic acid in catalytic domain of calcineurin is essential for <i>Neurospora crassa</i>	XL All India Cell Biology Conference & International Symposium on Functional Genomics and Epigenomics, Galav Sabhagar, Jiwaji University, Gwalior, November 17-19.	2016				
80	Roy A., and Tamuli R.	Studies on the molecular mechanism of Calcineurin regulatory subunit in <i>Neurospora crassa</i> .	XL All India Cell Biology Conference & International Symposium on Functional Genomics and Epigenomics, Galav Sabhagar, Jiwaji University, Gwalior, November 17-19.	2016				
81	Prerana Gogoi and Shankar Prasad Kanaujia	Latest methods in structural biology	JNU, New Delhi, November 14-26,	2016				
82	Monika Chandravanshi and Shankar Prasad Kanaujia	Latest methods in structural biology	JNU, New Delhi, November 14-26,	2016				
83	Suraj Kumar Mandal and Shankar Prasad Kanaujia	Latest methods in structural biology	JNU, New Delhi, November 14-26,	2016				
84	Monika Chandravanshi and Shankar Prasad Kanauji	Heterogeneous behavior of metalloproteins toward metal ion binding and selectivity: insights from molecular dynamics studies	NATIONAL CONFERENCE on "National Seminar on Crystallography-44 [NSC-44]", IISER Pune, July 10-13	2016				
85	Prerana Gogoi and Shankar Prasad Kanaujia	In silico analysis suggests that PH0702 and PH0208 encode for methylthioribose-1-phosphate isomerase and ribose-1, 5-bisphosphate isomerase, respectively, rather than	NATIONAL CONFERENCE on "National Seminar on Crystallography-44 [NSC-44]", IISER Pune, July 10-13	2016				

		aIF2B β and aIF2B δ						
86	Kedar Sharma, Anil Kumar Verma, Carlos M.G.A. Fontes, Shabir Najmudin and Arun Goyal	Low-resolution structure of glucuronoxylanohydrolase (<i>CtXynGH30</i>) of family 30 glycoside hydrolase from <i>Clostridium thermocellum</i> by SAXS	Annual Symposium of the Indian Biophysical Society	March 22-25, 2017	IISER Mohali, India			
87	Sumitha Banu J., Vijay S. Moholkar and Arun Goyal	Effect of dilute acid and alkali pretreatments on the holocellulose and lignin contents of Sorghum stalk for bioethanol production.	International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017)	Feb 26-28, 2017	Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India.			
88	Nadeem Akhtar, Kanika Gupta, Anchal Sharma, Dinesh Goyal and Arun Goyal	Bacterial diversity in bioconversion of agricultural waste for energy.	Recent Trends in Plant and Environmental Sciences.	February 9-10, 2017	Guru Nank Dev University Amritsar, Punjab.			
89	Arup Jyoti Borah, Ajeet Singh, Mayank Agarwal, Arun Goyal and Vijayanand S. Moholkar	Comparative insight of ultrasound induced enhancement of enzymatic hydrolysis of invasive biomass species with mechanistic model and its study	Asia Pacific congress on catalysis	January 17-21, 2017	Hotel, Lalit Mumbai India.			
90	Arup jyoti Borah, Ritesh malani, Arun Goyal and VS Moholkar	Kinetic modelling of dilute acid hydrolysis of various weedy invasive species as feedstock for biofuel production.	Asia Pacific congress on catalysis	January 17-21, 2017	Hotel, Lalit Mumbai India.			
91	Arup Jyoti Borah, Shyamali Sarma, Ritesh S. Malani, Arun Goyal, Vijayanand S. Moholkar	An assessment of various feedstock of invasive and noxious weeds as a potent candidate for bioethanol	International Conference on Current Trends in Biotechnology	Dec 8-10, 2016	VIT University, Vellore, Tamil Nadu, India.			

		production.						
92	Vikky Rajulapati and Arun Goyal	Biochemical characterisation of a recombinant pectin methylesterase (CtPME8) of family 8 carbohydrate esterase (CE8) from <i>Clostridium thermocellum</i>	International Conference on Current Trends in Biotechnology	Dec 8-10, 2016	VIT University, Vellore, Tamil Nadu, India			
93	Ashutosh Gupta, Vikky Rajulapati, Debasish Das and Arun Goyal	Comparative analysis of bioethanol production involving saccharification by mixed recombinant clostridial enzymes using sugarcane leafs and kans grass as sustainable feed stocks from north-east India.	International Conference on Current Trends in Biotechnology	Dec 8-10, 2016	VIT University, Vellore, Tamil Nadu, India.			
94	Sumitha Banu J., V.S. Moholkar and Arun Goyal	Comparative evaluation of pretreatment methods on agrowaste <i>Sorghum bicolor</i> stalk for bioethanol production.	International Conference on Current Trends in Biotechnology	Dec 8-10, 2016	VIT University, Vellore, Tamil Nadu, India.			
95	Nadeem Akhtar, Kanika Gupta, Dinesh Goyal and Arun Goyal	Evaluation of physicochemical characteristics of microwave alkali-acid pretreated leafy biomass of bamboo for efficient ethanol production.	Asia Pacific Conference on Biotechnology for Waste Conversion	December 6-8, 2016	Hong Kong Baptist University, Hong Kong			
96	Arun Goyal, Shadab Ahmed, Kedar Sharma, Vikas Gupta, Pedro Bule, Victor D. Alves, Carlos M.G.A. Fontes and Shabir	Crystal structure and molecular determinants of substrate specificity of arabinofuranosidase from <i>Clostridium</i>	14 th International Conference of the Asian Crystallographic Association,	4-7 December 2016	Hanoi, Vietnam			

	Najmudin	<i>thermocellum</i> .						
97	Kedar Sharma, Anil Kumar Verma, Carlos M.G.A. Fontes, Shabir Najmudin and Arun Goyal	Solution structure analysis of full length glucuronoxylan endo- β -1,4-xylanase from <i>Clostridium thermocellum</i> by Small Angle X-Ray Scattering.	14 th International Conference of the Asian Crystallographic Association,	4-7 Decem ber 2016	Hanoi, Vietnam			
98	Aruna Rani, Riwivo Baruah and Arun Goyal	Biocompatible and antioxidant properties of chondroitin sulphate isolated from chicken keel bone for potential biomedical applications.	57 th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
99	Shweta Singh, Abhijeet Thakur and Arun Goyal	Strain improvement of <i>Bacillus amyloliquefaciens</i> SS35 by UV mutagenesis for producing hyperactive mutants for improved carboxymethyl cellulase activity.	57 th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
100	Abhijeet Thakur and Arun Goyal	Molecular cloning, expression and purification of xylanase of family 11 Glycoside Hydrolase (GH11) from <i>Pedobacter saltans</i> .	57 th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
101	Karthika B., Kedar Sharma, Aruna Rani and Arun Goyal	Cloning, expression, purification and biochemical characterization of Heparinase II/III of family 12 polysaccharide lyase (PL12)	57 th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			

		from <i>Pedobacter saltans</i> .						
10 2	Arun Dhillon and Arun Goyal	A novel family 35 Carbohydrate Binding Module (<i>Rgl-CBM35</i>) from <i>Clostridium thermocellum</i> binds rhamnogalacturonan I	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
10 3	Vikky Rajulapati, Arun Dhillon and Arun Goyal	Ultrasound assisted extraction of pectin polysaccharide from the waste fruit peels of <i>Citrus preticulate</i> , <i>Malus domestica</i> and <i>Ananas comosus</i> .	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
10 4	Kedar Sharma and Arun Goyal	Cloning, expression and characterization of a xylanase from family 10 glycoside hydrolase (GH10) from <i>Pedobacter saltans</i> DSM12145.	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
10 5	Priyanka Nath, Arun Dhillon and Arun Goyal	Protein engineering of endo β -1-4 glucanase (<i>CtGH5</i>) from <i>Clostridium thermocellum</i> by site-directed mutagenesis for development of mutant with enhanced activity.	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
10 6	Rwivoo Baruah, Barsha Deka, Niharika Kashyap, V.S. Moholkar and Arun Goyal	Optimization and scale up of dextran production from <i>Weissella cibaria</i> RBA12.	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			

107	Krishan Kumar, Virginia M.R. Pires Carlos M.G.A. Fontes and Arun Goyal	Purification and characterization of a thermostable endo- β -1,3-glucanase (CtGH81) from <i>Clostridium thermocellum</i> .	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)	Nov 24-27, 2016	Gauhati University and IASST, Guwahati, Assam India			
108	Inês Lobo Antunes, Kedar Sharma, Vikky Rajulapati and Arun Goyal	Biochemical and structure characterization of a xylanase from family 10 glycoside hydrolase (GH10) from <i>Pedobacter Saltans</i> DSM12145.	CARBO-XXXI International Conference on "New Frontiers in Carbohydrate Chemistry and Biology"	14-16 November 2016	University of Delhi, New Delhi, India.			
109	Abhijeet Thakur, Carlos M.G.A. Fontes and Arun Goyal	Expression, purification and biochemical characterization of xylanase of family 11 Glycoside Hydrolase (CtXyn11A) from <i>Clostridium thermocellum</i> ATCC27405.	CARBO-XXXI International Conference on "New Frontiers in Carbohydrate Chemistry and Biology"	14-16 November 2016	University of Delhi, New Delhi, India.			
110	Sumitha Banu J., Arun Goyal And V.S. Moholkar	Comparative study of pretreatment methods for agrowaste pearl millet (<i>Pennisetum glaucum</i>) stalk for bioethanol production.	9th NABS National Conference on New Biological Researches: Opportunities and challenges for sustainable development.	August 11-12, 2016	School of Energy, Environment and Natural Resources, Madurai Kamaraj University, Madurai, India (Best Poster Award)			
111	Ritesh S. Malani, Sushobhan Pradhan, Arun Goyal, Vijayanand S. Moholkar	Ultrasound-Assisted interesterification of waste cooking oil with heterogeneous catalyst.	National Conference on Large Scale Multi-disciplinary systems of national Significance – Trends and Challenges	June 24-25, 2016	SHAR, ISRO, Srijharikota, Andhra Pradesh. (Best Poster Award)			
112	Immacolata Venditto, Ana S. Luis, Maja G. Rydahl, Julia Schückel, Vânia O. Fernandes,	The complexity of the <i>Ruminococcus flavefaciens</i> cellulosome reflects an	XIV Cell Wall Meeting	12 - 17 June, 2016	Chania, Crete, Greece			

	Silvia Vidal Melgosa, Pedro Bule, Arun Goyal, Virginia M.R. Pires, Catarina G. Dourado, Luís M.A. Ferreira, Pedro M. Coutinho, Bernard Henrissat, J. Paul Knox, Arnaud Baslé, Shabir Najmudin, Harry J. Gilbert, William G. Willats and Carlos M.G.A Fontes	expansion in glycan recognition.						
113	Arupjyoti Borah, Shuchi Singh, Arun Goyal and Vijayanand S. Moholkar	An assessment of invasive weeds as multiple feedstocks for biofuels production.	24 th European Biomass Conference and Exhibition	June 6-9 2016	Amsterdam, The Netherlands			
114	Niharika Kashyap, Riwivo Baruah, Vijay. S. Moholkar and Arun Goyal	<i>In situ</i> production and analysis of <i>Weissella cibaria</i> RBA12 dextran in whole wheat sourdough.	National Conference on Recent Advancement in Environmental Research,	4-5 June, 2016	Center for the Environment, IIT Guwahati, Guwahati, Assam India			
115	Tanushree Paul, Vikky Rajulapati, Kedar Sharma and Arun Goyal	Molecular cloning, expression and purification of a recombinant Glycoside Hydrolase family 10 (GH10) xylanase.	National Conference on Recent Advancement in Environmental Research,	4-5 June, 2016	Center for the Environment, IIT Guwahati, Guwahati, Assam India			
116	Sumitha Banu J., Vijay S. Moholkar and Arun Goyal	Comparative study of pretreatment methods for agrowaste finger millet (<i>Eleusine coracana</i>) stalk for bioethanol production.	National Conference on Recent Advancement in Environmental Research,	4-5 June, 2016	Center for the Environment, IIT Guwahati, Guwahati, Assam India			
117	Shweta Singh, Abhijeet Thakur and Arun Goyal	Enhancement of carboxymethyl cellulase activity of	National Conference on Recent Advancement in Environmental Research,	4-5 June, 2016	Center for the Environment, IIT			

		<i>Bacillus amyloliquefacians</i> SS35 by UV radiation induced mutagenesis.			Guwahati, Guwahati, Assam India			
118	Trishna Anand, Jina Bhattacharyya, Bithiah Grace Jaganathan.	Study of apoptosis in mesenchymal stem cells and differentiated cells.	7th International Conference on Stem Cells and Cancer (ICSCC-2016): Proliferation, Differentiation and Apoptosis	2016	-	-		

Book, Book Chapter, etc.

Total No. of Books published: 01

Total No. of Book Chapters published: 09

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	Satinder Kaur Brar, Saurabh Jyoti Sarma, Kannan Pakshirajan	Platform Chemical Biorefinery: Future Green Industry	Elsevier		528	9780128029800	2016

Format for submission of Book Chapter, etc.

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
01	Yogendra Pratap Singh, Shreya Mehrotra, Jai Praveen Kumar, Bibhas Kumar Bhunia, Nandana Bhardwaj, Biman B. Mandal. Edited by S. Swaminathan, K. Uma Maheswari and S. Anuradha.	Tissue Engineering Therapies for Ocular Regeneration	Biomaterials & Nanotechnology for Tissue Engineering	CRC Press (Taylor and Francis Group).		173-210	978-1-4987-4373-0	2017
02	CS Krishna Murthy and Biman B. Mandal. Edited by G.P. Kothiyal and A. Srinivasan.	Biomaterials based on natural and synthetic polymer fibers	Trends in biomaterials	Pan Stanford Publishing, Singapore		121-157	978-981-4613-98-9	2016
03	P. Mullai, M.K. Yogeswari, S. Vishali, M.M.	Aerobic treatment of effluents from	Current Developments in Biotechnology	Elsevier	4	3-27	9780444636638	2016, 15 th September

	Tejas Namboodiri, B.D. Gebrewold, E.R. Rene, K. Paksirajan	textile industries	and Bioengineering					
04	Sinharoy, A. Chingkheihunba A, K. Pakshirajan	An overview of production, properties and uses of biodiesel from vegetable oil	Green Fuels Technology	Springer International Publishing		83 - 105	978-3-319-30203-4	2016
05	R. Vinoth Kumar, K. Pakshirajan and G. Pugazhenth	Petroleum versus biorefinery based platform chemicals	Platform Chemical Biorefinery: Future Green Industry	Elsevier		33-53	9780128029800	2016, 18 th June
06	R. Vinoth Kumar, K. Pakshirajan and G. Pugazhenth	Malic and succinic acid – potential C4 platform chemicals for polymer and biodegradable plastic production	Platform Chemical Biorefinery: Future Green Industry	Elsevier		159-179	9780128029800	2016, 18 th June
07	N. Arul Manikandan, R. Vinoth Kumar, G. Pugazhenth and K. Pakshirajan	Biorefinery and possible deforestation	Platform Chemical Biorefinery: Future Green Industry	Elsevier		307-322	9780128029800	2016, 18 th June
08	Kanaujia, S.P.	Understanding the toxic metal binding proteins and peptides in	Metal-Microbe Interactions and Bioremediation: Principles and Applications for Toxic Metals	CRC Press, Taylor & Francis Group, UK			9781498762427	2017
09	Ritesh S. Malani, Arun Goyal and Vijayanand S. Moholkar	Ultrasound-Assisted Biodiesel Synthesis: A Mechanistic Insight	Biofuels, Technology, challenges and Prospects.	Springer		103-135	978-981-10-3790-0	2017
10	Gupta SG, Kunnumakkara AB, Aggarwal BB	Curcumin, the Holistic Aven-Grade	In Innovative Approaches in Drug Discovery	Elsevier		343-349		2016

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

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
Dr. Sachin Kumar	New Avenues in microbiology and biotechnology challenges and prospects.	Department of Microbiology, West Bengal State University.	2016	National
Dr. Sachin Kumar	Global Symposium on Animal Health and XXIX annual convention of Indian	Department of Microbiology, Assam Agricultural	2016	International

	Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases.	University, Khanapara, Guwahati, Assam and ICAR, Rani, Assam.		
Dr. Biman B Mandal	TERMIS-EU Conference	Uppsala, Sweden	28 June - 1 July 2016	International
Prof. Kannan Pakshirajan	4 th Bioprocessing India Conference (BPI-2016), Center of Innovative and Applied Bioprocessing (CIAB)	Mohali, Punjab	December 15-17, 2016	International
Prof. Kannan Pakshirajan	5 th International conference on research frontiers in Chalcogen cycle science and Technology	Goa, India	December 19 – 21, 2016	International
Prof. Kannan Pakshirajan	International Conference on Recent Advancements in Chemical, Environmental & Energy Engineering, S. S. N. College of Engineering, Chennai	Chennai, Tamil Nadu	February 23-24, 2017	International
Prof. Kannan Pakshirajan	National Seminar on Petroleum Biotechnology and Bioenergy, Tezpur University	Tezpur, Assam	March 3-4, 2017	National
Prof. Kannan Pakshirajan	TEQIP Workshop, Department of Chemical engineering, IIT Guwahati	Guwahati, India		National
Prof. Kannan Pakshirajan	Annamalai University, Chidambaram, Tamil Nadu	Chidambaram, Tamil Nadu		International
Prof. Kannan Pakshirajan	National conference on Recent advancement in Environmental research, Center for the Environment, IIT Guwahati	Guwahati, Assam	June 4-5, 2016	National
Dr. Lalit Pandey	The 3rd Int'l Conference on Surface and Interface of Materials (SIM 2017)	Thailand	January 3-5, 2017	International
Dr. Vibin Ramakrishnan	National Workshop on Drug Design and Discovery, ILS Bhubaneswar Name of the talk: A Reductionist Approach to Drug Discovery Research	Institute of Life Sciences, Bhubaneswar	22 March, 2017	National
Prof. L. Rangan	18 th Indo-US Workshop on Flow Cytometry	Biotech Park Lucknow	21 Feb 2017	
Prof. L. Rangan	International Symposium on Plant Biotechnology for Crop Improvement (ISPBCI-2017)	IIT Guwahati	19- 20 Jan 2017	
Prof. L. Rangan	10th Annual Convention of Association of Biotechnology and Pharmacy and International	Tirupati, AP	21-23 Dec 2016	
Prof. L. Rangan	BRSI Annual convention	Vellore, TN	8-10 Dec 2016	
Prof. R. Swaminathan	Gordon Research Conference on Intrinsically Disordered Proteins	Les Diablerets, Switzerland	26 th June to 1 st July 2016	International
Dr. Ranjan	NER Training Program on	Tata Memorial Centre,	July 4-15,	National

Tamuli	Gene Cloning , Protein Biochemistry , Structure Biology & Bioinformatics	Advanced Centre for Treatment, Research and Education in Cancer , Kharghar, Navi Mumbai – 4 10 210.	2016	
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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. B. Anand	“CRISPR-Cas System: From Genome Defence to Tinkering Genome” at Avidadham’17 (International Conference on Advances in Gene Editing)	Anna University	Chennai	Mar 1-2, 2017
Dr. B. Anand	“Host Factor Mediated Homing Mechanism of CRISPR-Cas Adaptive Immune System” at 20th ADNAT Convention	KIIT University	Bhubaneswar	Feb 16-18, 2017
Dr. B. Anand	“Homing Mechanism of the CRISPR-Cas Adaptive Immune System” at 85 th Annual Meeting of Society of Biological Chemists, India(SBCI)	CSIR-CFTRI	Mysuru	Nov 21- 24, 2016
Dr. B. Anand	“Functional Insights into the Mechanism of CRISPR-Cas Adaptive Immune system” at 82 nd Annual Meeting of Indian Academy of Sciences (IASc)	IISER	Bhopal	Nov 4-6, 2016
Dr. Biplab Bose	Making friend out of an enemy	GIPS, Guwahati	Guwahati	May 2016
Dr. Biplab Bose	Beyond overexpression: how network motifs control an oncofetal protein	35 th Annual Convention of Indian Association for Cancer Research (IACR2016)	New Delhi	April 2016
Prof. Rakhi Chaturvedi	Anti-bacterial potential of calli induced from stem, flower and leaf explants of <i>Lantana camara</i> L.	Plant Tissue Culture Association (PTCA) and Indian Institute of Chemical Biology (IICB)	Kolkata, India	03.03.17 to 05.03.17
Prof. Rakhi Chaturvedi	Crop Improvement through In vitro Haploid Production	International Symposium on Plant Biotechnology for Crop Improvement (ISPBCI-2017) at IIT Guwahati, Guwahati, India	Guwahati, India	20.01.17 to 21.01.17
Prof. Rakhi Chaturvedi	Application of Plant Tissue Culture Techniques for Bioresources Recovery	2nd Global Summit on Plant Science organized by Conference Series LLC., USA and Conference Series Ltd., UK	London, UK	06.08.16 to 08.08.16
Prof. Rakhi Chaturvedi	In vitro cell cultures - A source of Biobased valuable products	3 rd International Symposium on Advances in Sustainable Polymers (ASP-16) at Kyoto Institute of Technology, Japan	Kyoto, Japan	03.08.16 to 06.08.16
Prof. Rakhi	Exploring Plant	Gifu University, Japan	Gifu, Japan	30.07.16 to

Chaturvedi	Improvements and Bioaccumulation Capabilities of Plant Cells using Plant Tissue Culture			02.08.16
Prof. Rakhi Chaturvedi	Studies on nutrient uptake and culture conditions for synthesis of Caffeine, (+)-Catechine, (-)-Epicatechin and (-)-Epigallocatechin gallate in anther derived haploid cell lines of tea [<i>Camellia sinensis</i> (L.)]	4th International Conference on Plant Genomics by Conference	Brisbane, Australia	14.07.16 to 15.07.16
Prof. S. S. Ghosh	Emergence of Cancer Theranostics and Nano-ensemble Devices	Short term course on Nanotechnology	North-Eastern Hill University, Shillong	02/08/2016
Prof. S. S. Ghosh	Cancer Theranostics Smartens up to Utilize Oxidative Stress	9th Annual TCS Event & Flow Cytometry Workshop on Flow Application in Basic Applied & Clinical Biology. <i>FABACTCS</i> 2016	IITG	03/11/2016
Prof. S. S. Ghosh	Emergence of Cancer Theranostics	National conference of chemistry of Chalcogen and its Nanotechnology, <i>NC³-2017</i>	Defence Institute of Advanced Technology, Pune	13/01/2017
Prof. S. S. Ghosh	Nanotechnology in Biosensing, Detection and Device	Refresher Course in Nano Science & Nano Technology (Botany, Chemistry, Biotechnology, Physics, Electronics & Zoology)	Gauhati University	30/03/2017
Prof. S. S. Ghosh	Cancer Nanotheranostics	Refresher Course in Nano Science & Nano Technology (Botany, Chemistry, Biotechnology, Physics, Electronics & Zoology)	Gauhati University	30/03/2017
Prof. Pranab Goswami	Development of DNA aptamers against human heart type fatty acid binding protein for early detection of acute myocardial infarction	2 nd World Congress on Bio Summit & Molecular Biology Expo	Dubai, UAE	October 11, 2016
Prof. Pranab Goswami	Introduction to Biosensors and Developing aptamers as biorecognition element for diagnostics	GIAN programme on "Biosensing Principles and Technologies"	Tezpur University, Assam, India	June 23, 2016
Prof. Pranab Goswami	Biosensors	NEQIP on "Advance Materials for Engineering"	Chemical Engineering Department, Assam Engineering college (Assam)	April 26, 2016.
Dr. Biman B Mandal	Advances in Regenerative Medicine	UGC Refresher course, Guwahati University	Guwahati	March 23, 2017
Dr. Biman B Mandal	Human Tissue Engineering	Physics Department, IIT BHU	Varanasi	19-23 February 2017
Dr. Biman B Mandal	Bioengineered Human Tissues	Biotechnology Department, NIT Raipur,	Raipur	January 13, 2017
Dr. Biman B Mandal	Silk as a biomaterial	AIIMS	New Delhi	November 25, 2016

Dr. Vibin Ramakrishnan	Molecular Dynamics Simulations. Concept to Practice	Institute of Life Sciences, Bhubaneswar	Bhubaneswar	22 March, 2017
Prof. Latha Rangan	Combining the OLD with the NEW- "Nature is our PROTOTYPE"	CAS In Botany UGC SAP Visiting Fellow	Chennai	28 March 2017
Prof. Latha Rangan	Flow mining- Application and Progress in Plant Science,	Biotech and Research Park 18 th Indo-US Workshop on Flow Cytometry	Lucknow	21 March 2017
Prof. Latha Rangan	Genome size and chromosome number: keys to unfold polyploidization in taxonomically complex Zingiberaceae	IIT Guwahati International Symposium on Plant Biotechnology for Crop Improvement (ISPBCI-2017)	Guwahati	20 Jan 2017
Prof. Latha Rangan	Mining Renewable Energy Resources- Progress in Pongamia.	10th Annual Convention of Association of Biotechnology and Pharmacy and International	SV University Tirupati,	21-23 Dec 2016,
Prof. Latha Rangan	Mining Zingiberaceae FROM Wilderness to Tapping 'OMICS',	BRSI Annual convention	VIT Vellore, Chennai	8-10 Dec 2016
Dr. Ranjan Tamuli	Insight into the calcium signaling process using the model filamentous fungus <i>Neurospora crassa</i>	UGC-SAP and DBT-Hub Seminar in Molecular Microbiology.	Department of Molecular Biology and Biotechnology, Tezpur University	25.03.2017
Dr. Navin Gupta	Multivariate Methods for fusion of Multimodal Imaging and Genetic Datasets in > Schizophrenia	Department of EEE, IIT Guwahati	Guwahati	March 2017
Prof. Arun Goyal	Recombinant carbohydrate enzyme in conversion of waste biomass to biovalued products.	Center of Innovative and Applied Bioprocessing (CIAB)/ International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017)	Mohali, India	Feb 26-28, 2017
Prof. Arun Goyal	Crystal structure and molecular determinants of substrate specificity of arabinofuranosidase from <i>Clostridium thermocellum</i> .	14 th International Conference of the Asian Crystallographic Association	Hanoi, Vietnam	4-7 December 2016
Prof. Arun Goyal	A novel multi-ligand specific family 35 carbohydrate binding module (<i>Rgl</i> -CBM35) from <i>Clostridium thermocellum</i> targeting rhamnogalacturonan I	57th International Annual Conference of The Association of Microbiologists of India (AMI-2016)/ Gauhati University	Guwahati, Assam India	Nov 24-27, 2016
Prof. Gurvinder Kaur Saini	Engineering entomopathogenic fungi to improve the potency towards crop pests	Gauhati Univeristy	Gauhati Univeristy	November 24-27, 2016
Dr. Manish Kumar	Understanding Host-pathogen-vector interaction of spirochetes	Tezpur University, Assam	Department of MBBT, Tezpur, Assam	25.03.2017
Prof. Utpal Bora	Socio ethical issues in genome engineering	KIIT , Bhubaneswar	Bhubaneswar	February 16-18, 2017
Prof. Utpal Bora	Frontier in seribiotechnology	Arya Vidyapeeth College	Guwahati, Assam	February 13, 2017
Prof. Utpal Bora	Genome engineering: boon or bane	Dimoria College	Guwahati, Assam	February 28, 2017

Prof. Utpal Bora	Genome Editing: Future of Humankind and Evolution	Cotton College State University, Guwahati	Guwahati, Assam	February 28, 2017
Prof. Utpal Bora	Learning biology from silkworms	IIT Madras	Chennai, Tamil Nadu	March 24, 2017

12. Visitors 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
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13. Seminars/Workshops/Conferences/Short-Term Courses Organised

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	International Conference on Nutraceuticals and Chronic Disaeses	Nutraceutical companies	September 9-11, 2016	International	160
2	Dr. Ajaikumar B Kunnumakkara	Molecular Techniques in the Diagnosis of Cancer	Nil	November 17, 2016	National	40
3	Prof. Latha Rangan Convener	9 th TCS Annual Event and Workshop	TCS, DST, ICMR NE Council	5-7 Nov 2016	National	112
<p>The 3-day Symposium cum workshop was organized at the Indian Institute of Technology Guwahati (IITG) in collaboration with Dr. B. Borooah Cancer Institute (BBCI), Guwahati. The 9th Annual Cytometry Society of India symposium was on "flow applications in basic, applied and clinical biology FBACTCS". The event comprised of 2-day symposia at IITG on 3rd-4th November having lectures from eminent speakers, young investigators and corporate talks by Beckman Coulter, BD Biosciences and Thermo Fisher. The symposium also had poster presentations by around 30 young researchers who showcased their research based on flow cytometry. A workshop was held on 5th November 2016 at IITG in flow applications on basic and applied biology. A parallel workshop session was also held on the same day in BBCI in flow applications on clinical biology. A cultural evening was also held at IITG on 4th November 2016 in addition to technical sessions. Photographs of the event are given on the last page of the report.</p>						

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: 08

- i. Title of the invention: Antimicrobial short peptides, Inventors: Nitin Chaudhary, Karabi Saikia, Durga Sravani Yalavarthi, Vibin Ramakrishnan, Application No.: 353/KOL/2015, Published on 07.10.2016
- ii. A device with integrated methods for reverse transcription polymerase chain reaction (RTPCR) and/or DNA/Protein array based analyses". Arun Chattopadhyay, Sunil Kumar Sailapu, Deepanjalee Dutta, Amaresh Kumar Sahoo, Siddhartha Sankar Ghosh (Application number: PCT/IN2016/000141 dated 02/06/2016).
- iii. Title of the invention: DNA aptamers specifically binding to plasmodium falciparum glutamate dehydrogenase (PFGDHA)., Inventors: Pranab Goswami, Naveen Kumar Singh, Priyamvada Jain, Babina Chakma, Application no.201631025722, Applied on 27/07/2016
- iv. Title of the invention: Graphite paste inkwith silk sericin for enhancing the conductivity and stability, Inventors: Pranab Goswami, Mallesh Santhosh, Priyanki Das, Phurpa Dema Thungon, Applied on 01/07/2016, Application no. 201631022633
- v. Title of the invention: Crystalline Di-Histidine nanostructures, Inventors: Vibin Ramakrishnan, Sajitha S, Nitin Chaudhary & Gaurav Pandey, Applied on 09.03.2015, Application No. 243/KOL/2015, Published in 16.09.2016

- vi. Title of the invention: Antimicrobial peptides, Inventors: Vibin Ramakrishnan, Prakash Kishore Hazam, Nitin Chaudhary, Vishal Trivedi and Gaurav Jerath., Applied on 30.03.2015, Application No. 333/KOL/2015, Published on 30.09.2016
- vii. Title of the invention: Cost effective, portable optoelectronic instrument to measure steady state fluorescence and its set up method, Name of Inventors: Kulkarni Alark Shripad, Harshal Nemade and Rajaram Swaminathan, Application No.1136/KOL/2015 A, Patent Application Publication Date : 28/10/2016
- viii. Title of the invention: A Chemical Composition For Extracting Genomic DNA And Method Thereof, Inventors: Anand Tiwari and Ranjan Tamuli, Applied on 17-10-2016, Application No. 201631035509

No. of Patents Granted with details: NIL

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
1					
2					
3					
4					

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

- i. Prof. Pranab Goswami: Served as an expert in project review committee meeting of DBT, India on Basic and Modern biotechnology in NER during 27th - 28th April, 2016.
- ii. Dr. Sachin Kumar: 2016 NASI SCOPUS Young Scientist Award.
- iii. Dr. Biman B. Mandal: NASI-SCOPUS Young Scientist Award 2016 by National Academy of Sciences and SCOPUS India. Citation and cash award of 75k INR
- iv. Dr. Lalit Mohan Pandey, Early Career Research Award from Science and Engineering Research Board (SERB), Department of Science & Technology, Govt. of India
- v. Prof. Latha Rangan, 2016- Women Scientist Award from Biotech Research Society of India
- vi. Prof. Latha Rangan 2016- Fellow, Association of Pharmacy and Biotechnology
- vii. Dr. Kusum Singh: (MAY-JULY 2016) Invited as Guest Scientist at Institute for Genetics, University of Cologne, Received Albert's researcher reunion grant.
- viii. Prof. Arun Goyal: 2016 Malaviya Memorial Award- Senior Faculty (Medal and Cash award Rs 15,000/-) for outstanding contributions to Biotechnology by Biotech Research Society of India
- ix. Prof. Arun Goyal: 2016 G.B Manjrekar Award (citation and cash award Rs 20,000/-) for contribution to fundamentals of applied values of Microbiology by Association of Microbiologists of India
- x. Prof. Rakhi Chaturvedi: 2016 Newton-Bhabha Leading Women Scientist Award in Crop and Agricultural Sciences 2016" instituted jointly by DBT, India and Cambridge University, UK

16. Students' Achievements:

- i. Best department poster in IIT Guwahati research conclave 2017: Ritesh Kumar (PhD), Gundappa Saha(PhD), Prachi Bhalla (M.Tech)
- ii. Best Institute poster award in IIT Guwahati research conclave 2017:: Gundappa Saha (PhD)
- iii. Neha Arora , Best poster, ICSCC-2016, (Functional Stabilization of Recombinant PTEN onto Silica Nanoparticles for Potential Biomedical Applications)
- iv. Deepanjalee Dutta, Sunil Kumar Sailapu, Shortlisted within top 15 proposals, Assam Biotech conclave, Guwahati Biotech Park, January 5-6, 2017, (A bench top device and integrated methods for gene and protein analysis).
- v. Best poster award: Das M and Kumar S (2016) Molecular characterization of an apoptotic strain of Newcastle disease virus from Northeast India. Biology and Molecular Pathogenesis of Viruses, organized at MCB at IISC on 20-21st June, 2016
- vi. Venkateswara Rao Naira, a Ph.D student received an award entitled "T.V. DESIKACHARY MEMORIAL AWARD" for best poster presentation in National Conference on Biodiversity, Biology and Biotechnology of Algae (NCBBBA-2017) organized by Centre for Advanced Studies in Botany, University of Madras, Chennai (9-10 January 2017). Title of the poster: "Understanding the effects of inoculum size, CO2 and light intensity on growth of an indigenous microalgae, Chlorella sp. FC2 IITG in perspective to outdoor mass culturing for biodiesel production".

- vii. Shreya Mehrotra, Nandana Bhardwaj, Samit Kumar Nandi, Biman B. Mandal**. Biomimetic mulberry and non-mulberry silk cell sheets for cardiac patch applications. International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016), Indian Institute of Sciences, Bangalore. December 11-15, 2016. (BEST POSTER AWARD)
- viii. Ankit Gangrade and Biman B. Mandal**. Folic Acid Functionalized Carbon Nanotubes for Cancer Targeted Drug Delivery, Nanobiotech 2016, All India Institute of Medical Sciences (AIIMS, New Delhi), Organized by Indian Society of Nanomedicine (ISNM), November 24-26, 2016. (BEST POSTER AWARD)
- ix. Dimple Chouhan, Bijayshree Chakraborty, Samit K. Nandi and Biman B. Mandal**. Nonmulberry silk fibroin based functionalized nanofibrous mats as potential wound dressing material. International conference on Biomaterials, Biodiagnostics, Tissue Engineering, Drug delivery and Regenerative medicine (BiTERM 2016). Indian Institute of Technology Delhi. April 15-17, 2016. (BEST POSTER AWARD)
- x. Yogendra P. Singh, Mimi Adhikary, Salma Jasmine and Biman B. Mandal**. Silk fibre reinforced silk scaffolds for cartilage tissue engineering. International conference on Biomaterials, Biodiagnostics, Tissue Engineering, Drug delivery and Regenerative medicine (BiTERM 2016). Indian Institute of Technology Delhi. April 15-17, 2016. (BEST POSTER AWARD).
- xi. Bibhas K. Bhunia and Biman B. Mandal**. Affordable Bio-artificial Disc for Low Back Pain Management, Proposal presented in Assam Biotech Conclave, organized by Guwahati Biotech Park. January 5-6, 2017. (1st PRIZE for Product Innovation & Development)
- xii. Prerak Gupta, Manishekhar Kumar, Nandana Bhardwaj, Jadi Praveen Kumar, C.S.Krishnamurthy, Samit Kumar Nandi and Biman B. Mandal**. Mimicking form and function of native small diameter vascular conduits using mulberry and non-mulberry patterned silk films. Poster presented at Research Conclave 2017, Indian Institute of Technology Guwahati. March 16-19, 2017. (BEST POSTER AWARD)
- xiii. Shreya Mehrotra, Samit Kumar Nandi, Biman B. Mandal**. Stacking of silk-cardiomyocyte monolayers as a biomimetic approach for cardiac tissue engineering. Research Conclave 2017, Indian Institute of Technology Guwahati. March 16-19, 2017. (BEST POSTER AWARD)
- xiv. Saket Kumar Singh, Bibhas Kumar Bhunia, Nandana Bhardwaj, Sween Gilotra, Biman B. Mandal**. Reloadable Silk-Hydrogel Hybrid Scaffolds for Sustained and Targeted Delivery of Molecules, Poster presented at Research Conclave 2017, Indian Institute of Technology Guwahati, March 6-19, 2017. (BEST POSTER AWARD)
- xv. Yogendra Pratap Singh, Dimple Chouhan, Manishekhar Kumar, Bibhas Kumar Bhunia, Prerak Gupta, Biman B Mandal**. Silk based affordable tissue grafts and healthcare products. Indian Institute of Technology Guwahati-Technology Incubation Centre (IITG-TIC 2016), Indian Institute of Technology Guwahati. (2nd PRIZE for Product Innovation & Development)
- xvi. Best poster award: L. Goswami, K. Pakshirajan and G. Pugazhenthii (2017) Biodegradation of polycyclic aromatic compounds in a binary substrate system by Rhodococcus opacus, Indo- EU Workshop on “Microbial electrochemical technologies for sustainability: Fuels, Chemicals and Remediation”, CSIR-IICT, Hyderabad.
- xvii. Best poster award: A. Sinharoy and K. Pakshirajan (2016) Nanoparticle mediated enhanced biological carbon monoxide conversion using anaerobic microbial consortia, International conference of waste management, Recycle – 2016, IIT Guwahati.
- xviii. Best poster award: M.M.T. Namboodiri and K. Pakshirajan, (2016) Chitosan Production by Aspergillus niger using cheaply available Domestic Wastewater, ICWM- RECYCLE, IIT Guwahati.
- xix. Miss. Sajitha Sasidharan has won the best poster award at the “International Conference on Advances in Biological Systems and Material Science in NanoWorld” (ABSMSNW-2017), held at IIT-BHU, Varanasi, India.
- xx. Miss. Sajitha Sasidharan has secured 2nd position in the poster presentation at the institute level in Research Conclave 2017 held at IIT Guwahati, India.
- xxi. Gaurav Pandey received first prize for oral presentation at Advances in Biological Systems and. Materials Science in NanoWorld (ABSMSNW) 2017, organized by IIT BHU, Varanasi.
- xxii. Ms Anuma Singh, doctoral student received Best Poster Award for her poster titled “Synthesis, in silico studies and in vitro evaluation for antioxidant and antibacterial properties of diarylmethylamines: a novel class of structurally simple and highly potent pharmacophore” during the 9th TCS Annual symposium and Workshop on Flow applications in Basic, applied and Clinical Biology “FABACTCS2016 held from 3-5 Nov, 2016.
- xxiii. Bhagyashree Deka: Qualified CSIR-UGC NET, 2017 for Junior Research Fellowship (JRF) with AIR 75, Qualified CSIR-UGC NET, 2016 for Lectureship, Awarded DST INSPIRE Fellowship, 2016
- xxiv. Krishan Kumar, Best Poster Award, Research Conclave 2017, IIT Guwahati, Mar 2017
- xxv. Rishikesh Shukla, Young Scientist Award, AMI, Received Young Scientist Award by Association of Microbiologists of India (AMI) in 57th International Annual Conference of Association of Microbiologists of India (AMI), November, 2016, Gauhati University, Guwahati, Assam, Nov 2016

- xxvi. Kedar Sharma, Travel Grant, AsCA, Early Career Research Travel Award by International Union for Crystallography and Asian Crystallography Association for attending 14th Asian Crystallography Association Conference (AsCA-2016), Dec 4-7 2016, Hanoi, Vietnam, Dec 2016
- xxvii. Kedar Sharma, Travel Grant, DST, Worked as exchange student at Faculty of Veterinary Medicine (FMV), University of Lisbon under Indo- Portugal Joint Project, May-July, 2016
- xxviii. Ms. Javadi Monisha received 'Institute Best Poster Presentation Award' for the paper entitled "Downregulation of NGAL and Its Role in Head and Neck Squamous Cell Carcinoma" at Research Conclave 2017, IITG, Guwahati, India 2017.
- xxix. Ms. Javadi Monisha received 'Departmental Best Poster Presentation Award' for the paper entitled "Downregulation of NGAL and Its Role in Head and Neck Squamous Cell Carcinoma" at Research Conclave 2017, IITG, Guwahati, India 2017.
- xxx. Ms. Ganesan Padmavathi received 'Departmental Best Poster Presentation Award' for the paper entitled "Differential expression of TNFAIP-8 family of proteins in oral cancer tissues" at Research Conclave 2017, IITG, Guwahati, India 2017.
- xxxi. Ms. Devivasha Bordoloi received 'Young Scientist Award' for the paper entitled "An investigation on the anti-cancer mechanism of a chalconoid isolated from Toxicodendron vernicifluum against human oral squamous cell carcinoma" at the International conference on Nutraceuticals and chronic diseases 2016 (INCD-2016), Kerala, India, 2016.
- xxxii. Ms. Javadi Monisha received 'Best Oral Presentation Award' for the paper entitled "Insights into anticancer activity and mechanism of action of azadiradione against triple negative breast cancer" at the International conference on Nutraceuticals and chronic diseases 2016 (INCD-2016), Kerala, India, 2016.
- xxxiii. Ms. Harsha Choudhary received 'Best Poster Presentation Award' for the paper entitled "Gold nanoparticles (GNPs) synthesized from Elephant apple preferentially kills cancer cells" International conference on Nutraceuticals and chronic diseases 2016 (INCD-2016), Kerala, India, 2016.
- xxxiv. Ms. Ganesan Padmavathi received 'Best Outstanding Poster Presentation Award' for the paper entitled "Prevention of Azoxymethane Induced Colon Carcinogenesis by the Spice Carum copticum (Ajwain)" at the Translational Cancer Research, Ahmedabad, India, 2016.

17. Any Other (Special Mention)

i. Prof. Kannan Pakshirajan: Dr. Thesis evaluation:

- a. Effect of organic loading and cyanide on anaerobic digestion of cassava pulp. School of Environment Resources and Development, Asian Institute of Technology, Bangkok.
- b. Studies on the antifungal properties of biosurfactant produced by soil bacteria with reference to *Fusarium verticillioides* and *Fusarium oxysporum* f. sp. *Pisi*, Gauhati University, Assam, India.
- c. Enhancement of microbial fuel cell anode through functionalization of conductive polymer. Department of Civil and Environmental Engineering, University of Malay, Malaysia.

ii. Dr. Navin Gupta

- a. PhD thesis Internal Examiner at Dept of EEE, IIT Guwahati, Mr. Anurag Singh (Roll No.: 11610230)- Compressed Sensing Framework for Multi-channel ECG Signals

iii. Prof. Arun Goyal

- a. Invited as Visiting Fellow (UGC) by Department of Microbiology, Panjab University, Chandigarh for 2 weeks (Feb-March 2017).
- b. Invited to chair a session in International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017), Feb 26-28, 2017, Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India.
- c. Invited to Judge Best Poster award in International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017), Feb 26-28, 2017, Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India.
- d. Invited to Co-chair a session of presentations by Young Scientists during 57th Annual Conference of Association of Microbiologists of India (AMI), November 24-27, 2016, Gauhati University, Guwahati Assam
- e. Nominated by Agricultural Recruitment Board (ASRB) as an Advisor on the Selection Committee for conducting Viva-Voce of the candidates from ARS Examination 2015 for the recruitment of posts of Scientist. October 2016.

- f. Invited as an “Expert member for Selection Committee” for Faculty selection at Department of Bioengineering at Birla Institute of Technology, MESRA, Ranchi, April 19, 2016.

iv. Prof. Pranab Goswami

- a. Evaluated doctoral thesis entitled “Development of an optical biosensors for fluoride determination” from NIT Raipur, India.
- b. Evaluated doctoral thesis entitled “Isolation and characterization of biosurfactants from soil microbes of north-east India with special reference to antifungal properties against certain pathogenic fungi of sugarcane” from Gauhati University, India.
- c. Conducted PhD viva-voce for the thesis mentioned above (b).
- d. Evaluated doctoral thesis entitled “Development of biofunctional polymeric nanofibers and their therapeutic applications” from IIT Roorkee.
- e. Evaluated doctoral thesis entitled “Biodiesel production using enzyme catalyst and its application in CI engine” from Dr. B. R. Ambedkar NIT, Jalandhar, India.
- f. Conducted PhD viva-voce for the thesis mentioned above (e).
- g. Evaluated doctoral thesis entitled “Study of environmental and genetic risk factors of nasopharyngeal cancer patients in Manipur” from Manipur University.

18. Faculty Members (In alphabetical order according to surname)

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	
2	Bora Utpal	Institute of Genomics and Integrative Biology, Delhi	Professor	Biomedical Engineering, Biodiversity and Bio-entrepreneurship	
3	Bose Biplab	All India Institute of Medical Sciences	Associate Professor	Systems Biology, Cell signaling, Recombinant therapeutics	
4	Chandra Pranjali	Pusan National University, Busan, South Korea	Assistant Professor	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.	
5	Chaturvedi Rakhi	University of Delhi, Delhi	Professor	Plant Cell, Tissue & Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and Characterization of Plant Secondary Metabolites	

6	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	
7	Das Debasish	Indian Institute of Technology Bombay	Associate Professor	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel	
8	Dasu V. Venkata	Indian Institute of Technology Madras	Professor	Bioprocess Development, Metabolic Engineering	
9	Dubey Vikash Kumar	Banaras Hindu University	Professor	Biochemistry, Molecular Parasitology, Drug Discovery	
10	Ghosh Siddhartha S.	Indian Institute of Chemical Biology (IICB), Kolkata	Professor	Cancer Gene Therapy, Nanobiotechnology, Molecular Pathways Involving Drug Resistance	
11	Goswami Pranab	Gauhati University	Professor (HAG)	Biosensors and Biofuel cells	
12	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	
13	Gupta Navin	Brain Computer Interfaces and Neural Engineering (BCI-NE) Group, University of Essex	Assistant Professor	Imaging Genetics, Biomedical Signal/Image Processing, Multimodal Analysis, Computer Aided Diagnosis, Biomedical Instrumentation	23 Jan 2017
14	Jaganathan Bithiah G.	Johann Wolfgang Goethe University, Frankfurt, Germany	Associate Professor	Stem Cell Biology, Cancer signaling	
15	Kanaujia Shankar Prasad	Indian Institute of Science Bangalore	Associate Professor	Structural Biology and Bioinformatics Studies	
16	Kumar Manish	University of Maryland, College Park, USA	Associate Professor	Molecular interaction of host-pathogen-vector of infectious diseases	
17	Kumar Sachin	University of Maryland, College Park, USA	Associate Professor	Molecular biology of paramyxoviruses	
18	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	
19	Limaye Anil Mukund	Indian Institute of Science Bangalore	Associate Professor	Hormonal regulation of gene expression	
20	Maiti Soumen Kumar	Indian Institute of Technology Bombay	Assistant Professor	Bioprocess Engg, biofuel	
21	Mandal Biman B	Indian Institute of Technology Kharagpur	Associate Professor	Cell based tissue engineering, Biomaterials, Stem cells, Drug delivery systems	

22	Nagotu Shirisha	University of Groningen, Groningen, The Netherlands	Assistant Professor	Organelle biology and Inter-organelle communication, Cellular Ageing, Membrane fission and fusion	
23	Pakshirajan Kannan	Indian Institute of Technology Madras	Professor	Environmental Technology	
24	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	
25	Patra Sanjukta	Central Food Technological Research Institute, Mysore	Associate Professor	Enzymes - applications in pharma and food industry	
26	Ramesh Aiyagari	CFTRI, Mysore (Degree awarded by Mysore University)	Professor	Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors	
27	Ramakrishnan Vibin	Indian Institute of Technology Bombay	Associate Professor	Computational Biology, Bioinformatics, Biophysics, Bio-Organic Chemistry, Bio-nanotechnology	
28	Rangan Latha	University of Madras (Research work carried at IRRI, Manila)	Professor	Molecular systematics, Biofuel, IPR	
29	Sahoo Lingaraj	Maharshi Dayanand University, Rohtak, India	Professor	Genetic engineering and functional genomics of plants	
30	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	
31	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	
32	Senthilkumar S	Central Leather Research Institute, Chennai	Associate Professor	Biocalorimetry, BioPAT, Real-time monitoring and control of bioprocess systems	
33	Singh Kusum K	Institute of Molecular Medicine, Heinrich-Heine University of Duesseldorf, Germany	Assistant Professor	Post-transcriptional gene regulation by RNA binding Proteins	
34	Sukumar Piruthivi	University of Leeds, Leeds, UK	Assistant Professor	Smooth muscle and endothelial cell function, Cardiovascular Diseases, Diabetes, Obesity	
35	Swaminathan Rajaram	Tata Institute of Fundamental Research, Mumbai	Professor	Intrinsically Disordered Proteins, Protein Aggregation	

36	Tamuli Ranjan	CSIR-Centre for the cellular and Molecular Biology, Hyderabad	Associate Professor	Calcium signaling, Genetics, DNA repair	
37	Rajkumar P. Thummer	University of Groningen, Groningen, The Netherlands	Assistant Professor	Stem Cell Engineering and Regenerative Medicine	
38	Trivedi Vishal	Central Drug Research Institute, Lucknow	Associate Professor	Intracellular Signaling in <i>Plasmodium falciparum</i>	
39.	Yasufumi Kobayashi	United Graduate School of Agriculture, Gifu University, Japan	Visiting Assistant Professor	Plant Biotechnology	

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