

**DEPARTMENT OF BIOSCIENCES AND BIOENGINEERING**  
**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI**



**ANNUAL REPORT**

APRIL 2014 to MARCH 2015

**FORMAT FOR ANNUAL DEPARTMENT/CENTRE REPORT**

**(PERIOD: 1 APRIL 2014 – 31 MARCH 2015)**

1. **Year of Establishment of the Department:** Indian Institute of Technology, Guwahati established Department of Biotechnology in the year 2002. In the year 2014, the department was renamed as Department of Biosciences and Bioengineering.
2. **Academic Programmes Offered:** The Department offers B. Tech., M. Tech., and PhD programmes. The department also organizes conferences, workshops, and quality improvement programs for training and hands-on-experience in biotechnological tools and techniques. The department also offers for summer internship for external students.
3. **Students Admitted in the year 2014-2015:**Total student intake for the year is as follows: **43** in B. Tech., **33** in M. Tech, and **43** in Ph. D (numbers as provided from BT office for 2014)
4. **Faculty Strength:** Thirty two (32)
5. **Number of Faculty joined during 1 April 2014 – 31 March 2015:**  
**Professor: 0; Associate Professor: 0; Assistant Professor: 0; Visiting Professor: 0**
6. **Number of Faculty moving out/retired during 1 April 2014 – 31 March 2015: 0**
7. **No. of Laboratories with brief introduction:**

The department spans the N and O blocks of the institute occupying approximately 3637 squared meters. Around 40% of the total area is dedicated for running the laboratory courses of the B. Tech. and M. Tech. academic programmes. These laboratories include “Plant Biotechnology Laboratory (O-block)”, “Biochemistry and Microbiology Laboratory (O-block)”, and “Biochemical Engineering Laboratory (N-block) that are used for conducting the wet-lab courses of the academic curricula. The dry lab courses are conducted in the “Computational Biology Laboratory located in the O-block. In addition, the department houses a “Bioinformatics Infrastructure Facility” funded by the Department of Biotechnology, India. The laboratories are well-equipped for smoothly carrying out the experiments of the academic curricula.

Approximately 40% of the total space is dedicated to the research laboratories. The research laboratories are used for carrying out the routine experiments. For specialized experiments, department hosts a “Cell Culture Laboratory”, a “Spectroscopy Laboratory”. Apart from the departmental instruments housed at different locations within the department, the department has a DBT funded Program Support Instrument Facility (N-block, ground floor) include Research laboratories I, II, and III spanning both the blocks.

The state of the art laboratory facilities are available for biochemistry, plant biology, biochemical engineering and other experiments. The technical staffs of the department support the smooth conduct of experiments and maintenance of the laboratories. Most of the laboratories and faculty rooms are equipped with centralized air conditioning facilities. The laboratories are equipped with adequate furniture, chemical, glassware, and water supply units, maintained by the individual project grants and the IIT facility.

8. **Major Equipment and Facilities acquired during 1 April 2013 – 31 March 2014: (Total expenditure is Rs. 61,02,356.00)**

Sl. No.	Equipment	Qty.	Location	Make & Model	Actual Expenditure
1.	Microplate Reader (Absorbance & Fluorescence mode)	01	DCIF (Departmental Central Instrument Facility), ‘O’ block	<b>Make:</b> Tecan, <b>Model:</b> Tecan Infinite M-200	<b>16,63,200.00</b>
2.	Lyophilizer	01	DCIF, ‘N’ block	<b>Make:</b> Labogene <b>Model:</b> CS 100-9 Pro-System	<b>9,86,667.00</b>
3.	Suitable 5 kVA UPS	01	DCIF, ‘N’ block	<b>Make:</b> Orion <b>Model:</b> Astra series	<b>93,203.00</b>

4.	UPS (30 kV)	05 (+5 isolation transformers , 40 kVA)	All Teaching and Research laboratories in 'O' and 'N' block	<b>Make:</b> Eaton <b>Model:</b> EDX30K4E (Isolation Transformer, <b>Make:</b> Orion)	<b>25,04,815.00</b>
5.	UPS (02 kV) for the new Fluorometer	01	DCIF, 'N' block	<b>Make:</b> Orion <b>Model:</b> Astra series	<b>46,487.00</b>
6.	Peristaltic pump	01	DCIF, 'O' block	<b>Make:</b> Miclins <b>Model:</b> PP-10-EX	<b>43,891.00</b>
7.	Refrigerators	02	Research laboratories , 'O' block	<b>Make:</b> Samsung <b>Model:</b> RT 33JSRZESP/TL	<b>79,463.00</b>
8.	UPS (20 kV)	02	For computational labs	<b>Make:</b> Eaton <b>Model:</b> EDX20K4E	<b>6,67,380.00</b>
9.	Water purifier	01	Corridor area, 1 <sup>st</sup> floor, 'N' block	<b>Make:</b> Kent <b>Model:</b> Kent Grand Plus	<b>17,250.00</b>
<b>Total</b>					<b>61,02,356.00</b>

### 9. Major Areas of Research and Development:

The major thrust of the department includes biochemical engineering, tissue engineering, plant biotechnology, environmental biotechnology, nanobiotechnology, molecular biology, stem cell biology, gene therapy, computational biology, cancer biology, infectious diseases and proteomics. Keeping in mind the demands of the modern biotechnological research, the plans for establishing advanced research facilities are underway. In addition department is also involved in promoting science and education in the north east pertaining to the field of biotechnology by organizing workshops, symposium and seminar.

### 10. Major initiatives and breakthrough in Research and Development during 1 April 2014 – 31 March 2015:

- Dr Sachin Kumar lab performed complete genome sequence of many Indian isolates of Newcastle disease virus. Development of diagnostics against infection of Newcastle disease and classical swine fever viruses.
- Professor V.K.Dubey lab established molecular mechanisms of death that contribute to the anti-leishmanial activity of betulin. Moreover, the spermidine starvation as a result of LdSS inhibition is not related to elevated levels of reactive oxygen species. This suggests the involvement of spermidine in processes other than redox metabolism in Leishmania parasites. Our work provides a novel scaffold, i.e., hypericin, as a potent antileishmanial molecule.
- X-ray crystallography facility for protein has been installed in CIF, IIT Guwahati. The equipment was purchased from the project "Studies on structure of enzymes and their interaction with nanostructured materials for bioelectronics devices and other applications" sponsored by DBT India to Prof. Pranab Goswami, Principal Investigator, Prof. V. K. Dubey and Prof. P. Mahanta from Mechanical Engineering as co-investigators.

### 11. Research Projects:

#### a) New Sponsored Projects (Total No: 16)

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dr. Debasish Das	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)	DBT	92.08 Lakh 1.74 Crores 22.5 Crores	Prof. Arun Goyal  Dr. Debasish Das (PI)  Coordinator: Prof. P. Wangikar (IITB)	Dec. 2014- Dec. 2019

	2. Development of <i>Clostridium</i> sp. as a cell factory for butanol production: Metabolic & biochemical engineering approach. (Co-PI)				
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	-	June 2014-March 2017
Prof. Arun Goyal	Synthesis, structure and application analyses of glucans from hyper-producing LAB strains from North-east Indian microbial diversity	Department of Biotechnology (DBT) New Delhi	26.65	-	Jul 2014-March 2016.
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. S. P Kanaujia	2014-2017
Dr.Senthilkumar Sivaprakasam		Council for Scientific and Industrial Research (CSIR)	13	None	3 Years
L Sahoo	Exploring the binding space to develop an optimal transcriptional control system for abiotic stress tolerance in crops	DBT	111.42 Lakhs	Biplab Bose	3 years
L Sahoo	Plant probiotics to improve crop production in low nutrient soil	DST-JSPS	11.73 lakhs	Prof. Hiroyuki Koyama (Gifu University, Japan)	2 years
Dr Piruthivi Sukumar	Advanced glycation end products and macrophage store operated calcium entry	ICMR	19.998	Dr Biman B Mandal	2.5Yr
Dr. Biman B Mandal	Electrospun Silk Bioglass Scaffold for Interfacial Tissue Engineering	(DST-UKIERI) International grant	39.99	Dr. P. Sukumar (BSBE) Dr. R. Konwarh (BSBE)	15 months
Dr. Lalit Pandey	Thermodynamics of Protein Aggregation in Bulk Solution and in the presence of Surfaces	DST	35	NA	5
Dr. Nitin Chaudhary	Structural organization of huntingtin exon 1 fibrils	Science and Engineering Research Board, DST	23.8	None	3 years
R. Swaminathan	Investigating the role of protein dynamics on the function of few intrinsically disordered proteins	Department of Biotechnology, New Delhi.	98.20	None	Three years
Dr. Kannan	Carbon monoxide	Department of	7.5	Dr. G.	April

Pakshirajan	conversion using native hydrogenogenic microorganisms for sulphate rich wastewater treatment	Biotechnology (DBT)		Pugazhenthii, Chemical Engineering Department	2014 – June 2015
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 usin in vitro, in vivo and clinical approaches	Department of Biotechnology (DBT)	78.85	Dr Deepak Modi (NIRRH) and Dr Vandana Raphael (NEIGRIHMS)	2014-2017
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

**b) Ongoing Sponsored Projects (Total No:45)**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dr. B. Anand	“Molecular Mechanism of Ribosome Assembly in Bacteria” under "Unit of Excellence in RNA Biology"	DBT	58.80	-	18 months +
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. B. Anand	Structural Basis for the Maturation of the Prokaryotic siRNA	DBT	40.43494	-	3yrs
Dr. B. Anand	Dynamical Aspects of Era GTPase - 16S rRNA Interactions and its Implication in Ribosome Assembly	DAE-BRNS	16.85	-	3yrs
Sachin Kumar	Improved Infectious Bursal Disease Virus Vaccines Using Newcastle Disease Virus Vector	DBT	47.34	Nitin Chaudhary	3 years
Sachin Kumar	Role of N-glycans of Newcastle disease virus fusion protein in the host immune signaling molecules.	BRNS	16.80	NIL	3 years
Sachin Kumar	Inspire faculty award on Newcastle disease virus	DST	35.00	NIL	5 years
Dr. Vikash Kumar Dubey	X-ray crystallographic structure elucidation of key drug target enzymes of	DBT	72.69	Dr. S. Patra	2012-2015

	<i>Leishmania donovani.</i>				
Dr. Vikash Kumar Dubey	Deciphering the molecular mechanism underlying the activity of antitumor agents as antileishmanial agents and their potential for therapy.	DBT	68	None	2010-2015
Dr. Vikash Kumar Dubey	Variation in proteome profile of legume plants in response to heavy metal toxicity.	DST	23.5	Dr. Anil Verma, Chemical Engg	2012-2015
Dr.Senthilkumar Sivaprakasam	Design and Application of a Robust Process Analytical Technology (PAT) Platform for Real-time Monitoring and Control of Hyaluronic Acid Production	DBT	78.348	Prof. Guhan Jayaraman, IIT Madras	2013-2016
Dr.Senthilkumar Sivaprakasam	Application of Dielectric Spectroscopic Measurements for Real-time Monitoring and Control of High Cell Density Cultivation (HCDC) of <i>Pichia pastoris</i> for Production of Glycosylated Human Interferon Alpha2b	DST	20.57		2013-2016
L Sahoo	Development of Transgenic Cowpea for Virus Resistance Using the Tool of RNA Interference (RNAi)	DBT	83.34	Prof. M. V. Rajam (UDSC, New Delhi)	3 years
Dr Piruthivi Sukumar	Role of store operated calcium entry in diabetes and hyperlipidemia induced vascular smooth muscle dysfunction	DST SERB	24.9	--	3Yr
Dr. Ranjan Tamuli	Studies on the cellular roles of calcium signaling proteins in <i>Neurospora crassa</i> (NE-Twinning project)	DBT, India.	72.88 (Total), 50.70 (IITG)	Dr. Utpal Bora (IITG)	24.03.2011 -continuing
Biplab Bose	Integrative investigation on critical transcriptional modules involved in proliferation of malignant cells	DBT	37.2	Dr. Sudip Sen, AIIMS, New Delhi	2012-September 2015
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
Shankar Prasad Kanaujia	Understanding the mechanism of substrate delivery through solute-binding proteins related to ABC transporters	DST	47.19	None	4 years
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
Dr. Biman B Mandal	Silk2Heal.	(DBT-SWEDEN)	74.70	Dr. P. Sukumar	2014-2017

		International grant			
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 Mandal	Development of novel tissue engineered silk biomaterial based wound dressing patch for diabetic foot ulcers.	DBT	56.96	Dr. P. Sukumar Dr. N. Chaudhary	2014-2017
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	2013-2016
Dr. Biman B Mandal	Bioartificial Pancreas to Treat Diabetes.	DST	35.00	NIL	2013-2018
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. Nitin Chaudhary, IITG, Guwahati Dr. R. Nagaraj, CCMB, Hyderabad	Understanding the role of cation- $\pi$ interaction in the self-assembly of amyloidogenic and <i>de novo</i> designed peptides	Department of Biotechnology (DBT)	31.03 for IITG, Guwahati 14.5 for CCMB, Hyderabad	None	3 years
R. Swaminathan	Single molecule fluorescence investigations on the mechanism of lysozyme aggregation and RNA helicase activity	Department of Biotechnology, New Delhi.	60.50	Dr. B. Anand	Three years
Prof. S.S. Ghosh	Novel nanoscale materials targeted towards antimicrobial and anticancer activities.	DBT *Implemented at the Centre for Nanotechnology	169 Lakhs	Prof. A. Chattopadhyay Dr. Biplab Bose	03
Prof. S.S. Ghosh (Project coordinator) Other PIs: Prof. P. Goswami Prof. L. Sahoo Dr. B. Bose	DBT Programme support for Fundamental Molecular Investigations in Biotechnology	DBT	1133.68	Dr. A. Ramesh Dr. S. Patra	Since 2008
Dr. Kannan Pakshirajan	Strategy Development for the mitigation of heavy metals in surface waters around coal mining areas using native cyanobacterial	Department of Biotechnology (DBT)	14.65	-	June 2012 – May 2015

	strains				
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, Govt. of India	Rs. 76.5 lakhs	Dr. Piruthivi Sukumar & Dr. Madumita Roy (CNCI, Kolkata)	2014-2017
Dr. Ajaikumar B. Kunnumakkara	An Investigation of the Therapeutic Potential of Butein Isolated from Toxicodendron vernicifluum Against Human Oral Squamous Cell Carcinoma	DST, Govt. of India	Rs. 22.55 lakhs	-	2013-2015
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. Manish Kumar	Purification and characterization of putative outer membrane protein of <i>Leptospira interrogans</i>	IIT,G	5	NIL	2012-15
Dr. Manish Kumar	Purification and characterization of recombinant outer membrane proteins of <i>Leptospira interrogans</i> for vaccine and diagnostics	ICMR	10	NIL	2013-16
Dr. Manish Kumar	Modulation of gene expression in <i>Leptospira interrogans</i> exposed to human catecholamine hormone	SERB, DST	23.5	None	2013-2016
Pranab Goswami	Studies on structure of enzymes and their interaction with nanostructured materials for bioelectronics devices and other applications.(Implemented in the Energy Centre)	DBT India	473.00	V. K. Dubey P. Mahanta	3 years
Pranab Goswami	Development of Bioelectrodes for Biofuel Cell Applications. (Implemented in the Energy Centre)	MNRE India	33.73	P. Mahanta	3 years
Vibin Ramakrishnan	Design synthesis and Characterization of self-assembled molecular materials from heterotactic polypeptide constructs. Application in drug delivery and nanoscale energy storage devices	DBT	60.00	Senthilkumar S	3 Years
Dr. Utpal Bora (IITG) Dr. Rajlakshmi Devi (Coordinator, IASST)	Identification and characterization of bioactive molecules from some indigenous medicinal plants of NE region of India with special reference to anti-oxidant and hypolipidemic	DBT, Govt. of India	Rs 84.8 lakhs	Dr. Ranjan Tamuli (IITG) Dr. Jibon Kotoky (IASST)	3 years (2012-2015)



Dr. K. Suresh Babu (IICT)	properties			Dr. A.K. Tiwari (IICT)	
Dr. Utpal Bora (IITG)	Development of aptamer based molecular diagnostics for breast cancer	DBT, Govt. of India	154.85 lakhs	Dr. Ranjan Tamuli (IITG) Dr. A.C. Katak (BBCI) Dr. Bibhuti Bhusan Borthakur (BBCI) Dr. Jagannath Dev Sharma (BBCI) Dr. P. Nahar (IGIB)	4 years (2011-2015)
Dr Rakhi Chaturvedi	Yield enhancement strategies for production of therapeutic compounds by cell and tissue cultures of <i>Tinospora cordifolia</i> (willd.) Miers ex Hook. F. & Thoms.	DBT	82,52,000/-	Dr B.S. Bhau, NEIST, Jorhat Prof. B.K. Patel IITG Prof V.S Bisaria IIT Delhi	2011-2015
Dr Rakhi Chaturvedi	<i>In vitro</i> production of doubled haploids in Tea ( <i>Camellia sinensis L.</i> ).	DBT	64,58,000.00 ( Sixty four lakh fifty eight thousand only)	Dr Vishal Trivedi	March 2014-2017

**c) Completed Sponsored Projects (Total No:32)**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Prof. Arun Goyal	Molecular and functional characterization of dextran production in <i>Weissella</i> spp. - Superior dextran producers for cereal applications	Indo-Finland Joint Project DBT, New Delhi	77.03		March 2012- March 2015
Dr. Debasish Das	Process optimization for microbial synthesis of Hyaluronic Acid from new isolates: Development of structured kinetic model and experimental validation	Council of Scientific and Industrial Research (CSIR) New Delhi	14.0	Prof. Arun Goyal	Jan 2012-Jan 2015
Dr. Vikash Kumar Dubey	Studies on trypanothione synthetase, a key enzyme of redox metabolism of	DBT	27.73	None	2011-2014

	<i>Leishmania donovani.</i>				
Dr. Vikash Kumar Dubey	Studies on Peptide-conjugated nanoparticles mediated antileishmanial drug delivery to macrophages.	DBT	31.83	Dr. S. Patra	2011-2014
Dr. Vikash Kumar Dubey	An integrated computational and biochemical approach to target ornithione decarboxylase, a key enzyme involved in synthesis of trypanothione for antileishmanial drug discovery.	ICMR	31.83	Dr. V. Trivedi	2011-2014
Dr. Vikash Kumar Dubey	Betraying the parasite's redox system: Studies on spermidine synthase of <i>Leishmania donovani</i> .		82.18	Dr. V. Trivedi, BT, Dr. P.K.Iyer, Chem	
L Rangan	Molecular and physico-chemical characterization of selected ginger species from North Eastern Region	DBT	52.75	Dr A Parida (MSSRF Chennai) Dr S Mitra (JNU New Delhi)	3 years (2011-2015)
L Sahoo	Development and evaluation of transgenic mungbean over expressing AtNHX1 and AVP1 for salt tolerance	DBT	103.03	---	5 years
L Sahoo	Development of pod borer resistant transgenic pigeonpea and chickpea	ICAR	58 lakhs	Prof. S. K. Sen (BREF Biotech, IIT Kharagpur)	3 years
Biplab Bose	Inhibitor Based Selection of Blocking Antibodies against Heparin-binding EGF-like Growth Factor: Developing Potent Molecules for Antibody-based Cancer Therapy	DBT	11.72	Dr. S. S. Ghosh	2007 - 2010
Biplab Bose	Development of Therapeutic Human Antibodies Against Cripto-1: Targeting Oncogenic Signaling. (Funded by DST, 2007 - 2010)	DST	10.34	-	2007-2010
Shankar Prasad Kanaujia	Structural determinants and protein engineering of metal binding of Phospholipase A <sub>2</sub>	IIT Guwahati	5.00	None	2 years
Dr. Biman B Mandal	Silk based biomimetic scaffolds for tissue engineering applications.	IITG	5.00	NIL	2011-2013
R. Swaminathan	Protein aggregation: Early molecular events, mechanisms and inhibition	Department of Science and Technology, New Delhi.	53.38	None	Three years

Pranab Goswami	Studies and application of redox enzymes for bioelectornics devices	DBT India	98 lacs	Sanjukta Patra	5 years
Dr Anil M Limaye	Characterization of rat ventral prostate specific PBPC1BS and S100RVP gene promoters	IITG	5.00	None	2009-2011
Dr Anil M Limaye	Modulation of estrogen regulated gene expression by green tea polyphenol EGCG in ER positive breast cancer cells: a microarray study	ICMR	10.00	None	2012-2015
Dr Anil M Limaye	Real-time quantitative RT-PCR based expression profiling of matrix metalloproteinases and their inhibitors in prostate cancer cell lines	DST	24.00	Dr B. G. Jaganathan	2013-2015
Dr Anil M Limaye	The SHBG-RSHBG pathway: insights from prostate cancer cell lines.	DST	19.00	None	2010-2013
Dr. Utpal Bora (IITG)	Development of silk protein derived artificial nerve growth conduits for neural tissue engineering	Ministry of textiles, Govt. of India	45.30 lakhs	Dr. RanjanTamuli (IITG)	3 years (2011-2014)
Dr. Utpal Bora (IITG)	Silk based scaffolds for Neural Tissue Engineering	Department of Biotechnology, Govt. of India	58.44 lakhs	Dr. RanjanTamuli (IITG)	3 years (2011-2014)
Dr. RanjanTamuli (IITG)	Studies on the cellular roles of calcium signaling proteins in Neurosporacrassa (NE-Twining project)	Department of Biotechnology, Govt. of India	72.88 lakhs	Dr. Utpal Bora (IITG) Dr. Durgadas P. Kasbekar (CCMB) Dr. Ch. Mohan Rao (CCMB)	3 years (2011-2014)
Dr. Latha Rangan (IITG)	DNAB (DNA Barcoding) based biodiversity inventory in Zingiberaceae of Northeast India	DIT, MCIT, Govt. of India	71.18 lakhs	Dr. Utpal Bora & Dr. L. Sahoo (IITG)	5 years (2008-2013)
Dr. Utpal Bora (IITG)	ElectrospunNanofiber Scaffolds for Hepatic Tissue Engineering	Department of Biotechnology, Govt. of India	52.55 lakhs	Dr. Pranab Goswami (IITG)	3 years (2007-2010)
Dr. Utpal Bora (IITG)	Nanoparticle mediated targeted siRNA delivery to cancer cell lines	DST, Govt. of India	12.96 lakhs	-	3 years (2007-2010)
Dr. Pranab Goswami (IITG)	Enzymatic Biofuel cell for Biomedical application	Department of Biotechnology, Govt. of India	35.00 lakhs	Dr. Utpal Bora (IITG)	3 years (2007-2010)
Dr. Pranab Goswami (IITG)	Development of Enzyme Electrode for the Construction of Cholesterol Biosensor.	CSIR, Govt. of India	2.25 lakhs	Dr. Utpal Bora (IITG)	3 years (2007-2010)
Dr. Utpal Bora (IITG)	Synthesis of biodegradable nanocarriers for targeted drug delivery	DBT, Govt. Of India	14.686.00	Dr. Pranab Goswami (IITG)	3 years (2006-2009)
Dr. S.K. Khijwania, (IITG)	Glucose sensor based on evanescent wave induced fluorescence spectroscopy.	BRNS, Dept. of Atomic Energy, Govt. Of India	9.35 lakhs	Dr. Utpal Bora (IITG)	3 years (2005-2008)

Dr. Bithiah Grace Jaganathan	Role of Rho GTPase RhoA on interaction between Human Mesenchymal Stem Cells and Hematopoietic Stem Cells	DBT	39.26	Dr. Anil M Limaye	3 years
Dr. Bithiah Grace Jaganathan	Cytoskeletal organization and migration potential of Mesenchymal Stem Cells (MSC) during different stages of differentiation	DST	24.2	-	3 years
Dr. Bithiah Grace Jaganathan	Study of Apoptotic Signalling Pathways in Mesenchymal Stem Cells during Normal and Differentiated State	DBT	91.05	Dr. Rajesh Singh (Univ. Baroda)	3 years

## 12. Consultancy (Total No:0)

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

### International and National Journal

**Total No. of International Journal: 118**

**Total No. of National Journal: 03**

S.NO.	Name of Author/s	Name of Paper	Name of Journal in full	Volume and Issue No.	Page No.	Year and Date of Publication
1.	Anil Kumar Verma, Pedro Bule, Teresa Ribeiro, Joana L. A. Brás, Joyeeta Mukherjee, Munishwar N. Gupta, Carlos M.G.A. Fontes and *Arun Goyal	The family 6 Carbohydrate Binding Module (CtCBM6) of glucuronoxylanase (CtXynGH30) of <i>Clostridium thermocellum</i> binds decorated and undecorated xylans through Cleft A.	Archives of Biochemistry and Biophysics	DOI: 10.1016/j.abb.2015.03.026		2015
2.	Shuchi Singh, Mayank Agarwal, ShyamaliSarma, Arun Goyal and Vijayanand S. Moholkar	Mechanistic insight into ultrasound induced enhancement of simultaneous saccharification and fermentation of <i>Partheniumhysterophorus</i> for ethanol production	UltrasonicsSonoc hemistry	DOI: 10.1016/j.ultsonch.2015.02.011		2015
3.	RwivooBaruah and Arun Goyal	Hyper glucansucrase, glucan and oligosaccharide producing novel <i>Weissellacibaria</i> RBA12 isolated from Pummelo ( <i>Citrus maxima</i> )	Annals of Microbiology	DOI: 10.1007/s13213-015-1072-7		2015
4.	Shuchi Singh, ShyamaliSarma, Mayank Agarwal, Arun Goyal and Vijayanand S. Moholkar	Ultrasound enhanced ethanol production from <i>Partheniumhysterophorus</i> : A mechanistic investigation	Bioresource Technology	10.1016/j.biortech.2014.12.038		2015
5.	Shuchi Singh,	Purification and	Environmental	DOI 10.1002/ep		2015

	Pritam K. Dikshit, *Vijayanand Mohalikar and *Arun Goyal	characterization of acidic cellulase from <i>Bacillus amyloliquefaciens</i> SS35 and its utilization for hydrolyzing Parthenium hysterophorus biomass	Progress and Sustainable Energy			
6.	Deeplina Das and Arun Goyal	Anti-oxidant activity and $\gamma$ -aminobutyric acid (GABA) producing ability of probiotic <i>Lactobacillus plantarum</i> DM5 isolated from Marcha of Sikkim	LWT Food Science and Technology	DOI 10.1016/j.lwt.2014.11.013		2015
7.	Nadeem Akhtar, Aanchal, Dinesh Goyal and Arun Goyal	Simplification and optimization of media ingredients for enhanced production of CMCase by newly isolated <i>Bacillus subtilis</i> NA15	Environmental Progress and Sustainable Energy	DOI 10.1002/ep.12004		2015
8.	Seema Patel, Rishikesh Shukla and *Arun Goyal	Probiotics in valorization of innate immunity across various models	Journal of Functional Foods	14	549-561	2015
9.	Damini Kothari and Arun Goyal	Gentio-oligosaccharides from <i>Leuconostoc mesenteroides</i> NRRL B-1426 dextranase as prebiotics and as supplement for functional foods with anti-cancer properties.	Food and Function	6	604-611	2015
10.	Soumyadeep Chakraborty <sup>†</sup> , Vania O. Fernandes <sup>†</sup> , Fernando M.V. Dias, Jose A.M. Prates, Luis M.A. Ferreira, Carlos M.G.A. Fontes, *Arun Goyal and *Maria S.J. Centeno	Role of pectinolytic enzymes identified in <i>Clostridium thermocellum</i> cellulosome	Plos One	10(2), e0116787		2015
11.	Arabinda Ghosh, Anil Kumar Verma, Jagan Mohan Rao T., Rishikesh Shukla and *Arun Goyal	Recovery and purification of oligosaccharides from copra meal by recombinant endo- $\beta$ -mannanase and deciphering molecular mechanism involved and its role as potent therapeutic agent	Molecular Biotechnology	57	111-127	2015
12.	Immacolata Venditto, *Arun Goyal, Andrew Thompson, Luis M. A. Ferreira, Carlos M.G.A. Fontes and Shabir Najmudin	Crystallization and preliminary crystallographic studies of a novel, non-catalytic carbohydrate-binding module from <i>Ruminococcus flavefaciens</i> cellulosome.	Acta Crystallographica F	F71	45-48	2015
13.	Seema Patel and Arun Goyal	Applications of natural polymer gum Arabic: a review	International Journal of Food Properties	18(5)	986-998	2015
14.	Shuchi Singh,	Mechanistic investigation	Industrial &	53	14241-	2015

	S.T.P. Bharadwaja, Pawan Kumar Yadav, *Vijayanand S. Moholkar and *Arun Goyal	in ultrasound-assisted (alkaline) delignification of <i>Partheniumhysterophorus</i> biomass	Engineering Chemistry Research		14251	
15.	Shuchi Singh, Swati Khanna, *Vijayanand S. Moholkar and *Arun Goyal	Screening and optimization of pretreatments for <i>Partheniumhysterophorus</i> as feedstock for alcoholic biofuels	Applied Energy	129	195-206	2014
16.	Arabinda Ghosh, Anil K. Verma, Ana Sofia Luis, Joana L. A. Bras, Carlos M. G. A. Fontes, *Arun Goyal	Analysis of structure and ligand binding of family 35 carbohydrate binding module (CtCBM35) of <i>Clostridium thermocellum</i>	Biologia	69(10)	1271-1282	2014
17.	Arabinda Ghosh, Anil K. Verma, Saurabh Gautam, Munishwar N. Gupta and *Arun Goyal	Structure and functional investigation of ligand binding by a family 35 carbohydrate binding module (CtCBM35) of $\beta$ -mannanase of family 26 Glycoside Hydrolase from <i>Clostridium thermocellum</i> .	Biochemistry (Moscow)	79	672-686	2014
18.	Damini Kothari, Seema Patel and *Arun Goyal	Therapeutic spectrum of non-digestible oligosaccharides: Overview of current state and prospects.	Journal of Food Science	79	R1491-R1498	2014
19.	Jagan Mohan Rao T., Damini Kothari, Rishikesh Shukla and *Arun Goyal	Characterization and <i>In vitro</i> analysis of dextran from <i>Weissellacibaria</i> JAG8 as food additive	International Journal Food Science and Nutrition	68	686-691	2014
20.	Jagan Mohan Rao Tingirikari, Damini Kothari and *Arun Goyal	Superior prebiotic and physicochemical properties of novel dextran from <i>Weissellacibaria</i> JAG8 for potential food applications.	Food and Function	5	2324-2330	2014
21.	Jagan Mohan Rao T. and *Arun Goyal	Dextranucrase from <i>Weissellacibaria</i> JAG8 inhibited by lysine and cysteine specific inhibitors	Current Enzyme Inhibition	10(2)	143-149	2014
22.	Arun Goyal <sup>††</sup> , Shadab Ahmed <sup>†</sup> , Carlos M.G.A. Fontes and *Shabir Najmudin	Crystallization and preliminary X-ray crystallographic analysis of a novel $\alpha$ -L-arabinofuranosidase (CtGH43) from <i>Clostridium thermocellum</i> ATCC 27405.	Acta Crystallographica F	F70	616-618	2014
23.	Ashutosh Gupta, Saprati P. Das, Arabinda Ghosh, Rajan Choudhary, *Debasish Das and *Arun Goyal	Bioethanol production from hemicellulose rich <i>Populus nigra</i> involving recombinant hemicellulases from <i>Clostridium</i>	Bioresource Technology	165	205-213	2014

		<i>thermocellum.</i>				
24.	Swati Khanna, Anil Kumar Shukla, Arun Goyal and Vijayanand S. Moholkar	Alcoholic biofuels production from biodiesel derived glycerol by <i>Clostridium pasteurianum</i> whole cells immobilized on silica	Waste and Biomass Valorization	5	789-798	2014
25.	Deeplina Das and *Arun Goyal	Isolation, purification and functional characterization of glucan sucrose from probiotic <i>Lactobacillus plantarum</i> DM5.	Annals of Microbiology	64(4)	1715-1724	2014
26.	Deeplina Das and *Arun Goyal	Characterization of a noncytotoxic bacteriocin from probiotic <i>Lactobacillus plantarum</i> DM5 with potential as food preservative.	Food and Function	5(10)	2453-2462	2014
27.	Deeplina Das, Rwiwo Baruah and *Arun Goyal	A food additive with prebiotic properties of a glucan from <i>Lactobacillus plantarum</i> DM5	International Journal of Biological Macromolecules	69	20-26	2014
28.	Deeplina Das and *Arun Goyal	Potential probiotic attributes and antagonistic activity of an indigenous isolate <i>Lactobacillus plantarum</i> DM5 from an ethnic fermented beverage "Marcha" of North Eastern Himalayas.	International Journal Food Science and Nutrition	65	335-344	2014
29.	Saprativ P. Das, Deepmoni Deka, Rajeev Ravindran, Shadab Ahmed, Arabinda Ghosh, Debasish Das, Mohammad Jawed, Carlos M.G.A. Fontes and *Arun Goyal	Ethanol production from water hyacinth ( <i>Eichhornia crassipes</i> ) by recombinant <i>Clostridium thermocellum</i> hydrolytic enzymes.	Environmental Progress & Sustainable Energy	33(4)	1396-1404	2014
30.	Rishikesh Shukla and *Arun Goyal	Purification and characterization of dextran sucrose from <i>Pediococcus pentosaceus</i> C RAG3 isolated from fermented cucumber	Indian Journal of Experimental Biology	52	1036-1044	2014
31.	Gogoi P, Ganar K, Kumar S	Avian paramyxovirus: A brief review	Transboundary and Emerging Diseases.	Not assigned	Not assigned	2015
32.	Kumar S	Newcastle disease virus outbreaks in India: Time to revisit the vaccine type and strategies	Vaccine	Not assigned	Not assigned	2015, March 11
33.	Kumar R, Barman NN, Khatoon E, Rajbongshi G, Deka N, Morla S, Kumar S	Molecular characterization of E2 glycoprotein of classical swine fever virus: adaptation and propagation in porcine kidney cell	In Vitro Cellular & Developmental Biology - Animal	Not assigned	Not assigned	2015, Jan 1
34.	Gogoi P, Morla S, Kaore M, Kurkure N, Kumar S	Complete genome sequence of a Newcastle disease virus isolate from	Genome Announcements	3(1).		2015, January/February

		an outbreak in Central India				
35.	Kumar S	DNA vaccine against infectious bursal disease virus: still more to explore	Veterinary Microbiology	175	389-390	2015
36.	Kumar CS, Kumar S	Species based synonymous codon usage in fusion protein gene of Newcastle disease virus	PLoS ONE	9(12)	e114754.	2014, Dec 5
37.	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	Transboundary and Emerging Diseases.	Not assigned	Not assigned	2014, Nov 27
38.	Rani S, Gogoi P, Kumar S	Spectrum of Newcastle disease virus stability in gradients of temperature and pH	Biologicals	42	351-354	2014
39.	Adam V, Crosariol M, Kumar S, Ge M, Czack S, Roy S, Haczku A, Tretiakova A, Wilson JM, and Limberis M	AAV9-mediated airway expression of antibody protects old and immunodeficient mice against influenza	Clinical Vaccine Immunology	21(11)	1528-1533	2014
40.	Paldurai A, Xiao S, Kim SH, Kumar S, Nayak B, Samal S, Collins PL, Samal SK	Naturally occurring six- and twelve-nucleotide inserts do not affect Newcastle disease virus replication and pathogenesis	PLoS ONE	9(8)	e103951	2014, Aug 5
41.	Basavarajappa MK, Kumar S, Khattar SK, Gebrelul GT, Paldurai A, Samal SK	A recombinant Newcastle disease virus (NDV) expressing Infectious Laryngotracheitis virus (ILTV) gD surface protein protects against highly virulent ILTV and NDV challenges in chickens	Vaccine	32(28)	3555-63	2014, Jun 12
42.	Morla S, Tiwari AK, Joshi V, Kumar S	Complete genome sequence of a Newcastle disease virus isolate from an outbreak from Northern part of India	Genome Announcements	2(2)		2014, March/April 24
43.	Ganar K, Das M, Sinha S, Kumar S	Newcastle disease virus: current status and our understanding	Virus Res	184C	71-81	2014
44.	Shalini Singh, Shyamali Sarma, Shashank P Katiyar, Mousumi Das, Ruchika Bhardwaj, Durai Sundar Vikash Kumar Dubey*	Probing molecular mechanism of hypericin induced parasitic death: An insight into role of spermidine beyond redox metabolism of Leishmania.	Antimicrobial Agents and Chemotherapy	59(1):	15-24	2015
45.	Mousumi Das, Ritesh Kumar and Vikash Kumar Dubey*.	Ornithine decarboxylase of <i>Leishmania donovani</i> : Biochemical properties and possible role of N-terminal extension.	Protein and Peptide Letters	22(2):	130-136	2015
46.	Prakash Saudagar	Carbon Nanotube Based	Parasitology	63	772-	2014



	and Vikash Kumar Dubey*	Betulin Formulation shows better efficacy against <i>Leishmania</i> parasite .	International		776	
47.	Prakash Saudagar, Shyam Lal Mudavath, Pipas Saha, Anil K. Saikia, Shyam Sundar and Vikash Kumar Dubey*.	<i>In vivo</i> assessment of antileishmanial property of 4-(4,4,8-Trimethyl-7 oxo-3-oxabicyclo[3.3.1]non-2-yl)-benzoic acid methyl ester, an oxabicyclo[3.3.1]nonanones.	Letters in Drug Design and Discovery	11	937-939	2014
48.	Saudagar Prakash and Vikash Kumar Dubey*	Molecular Mechanisms of <i>In vitro</i> Betulin Induced Apoptosis of <i>Leishmania donovani</i>	American Journal of Tropical Medicine and Hygiene	90	354-360	2014
49.	Vidhyadhar N, Sushant Singh, Abhay N Singh, Vikash Kumar Dubey*.	Procerain B, a cysteine protease from <i>Calotropis Procera</i> , requires N-terminus pro-region for activity: cDNA cloning and expression with pro-sequence.	Protein Expression and Purification	103C	16-22.	2014
50.	S Ghosh, L Rangan analysis and hierarchical clustering. Meta Gene (Accepted)	Inhibition kinetics and molecular docking of $\alpha$ -amylase against isolated labdane diterpenes from <i>Alpinia nigra</i>	Medicinal Chemistry Research	23 (11)	4836-4852	2014
51.	S Basak, AM Ramesh, V Kesari, S Mitra, A Parida, L Rangan	Molecular phylogeny of <i>Hedychium</i> from Northeast India as dissected using PCA analysis and hierarchical clustering	Meta Gene	2	459-468	2014
52.	JN Vaughn, SR Chaluvadi, Tushar L Rangan, JL Bennetzen	Whole plastome sequences from five major zingiberaceae members facilitate marker development and define limits to barcode methodology.	PloS ONE	9 (10), e108581		2014
53.	S Ghosh, L Rangan	Molecular docking and inhibition kinetics of $\alpha$ -glucosidase activity by labdane diterpenes isolated from Tora seeds ( <i>Alpinia nigra</i> B.L. Burt.)".	Applied Biochemistry Biotechnology	DOI: 10.1007/s12010-014-1366-4		2014
54.	Satish C, Srikanth K, Arun EVR and Senthilkumar S	Statistical optimization of cassava fibrous waste hydrolysis by response surface methodology and use of hydrolysate based media for the production of optically pure d-lactic acid	Biochemical Engineering Journal	doi:10.1016/j.bej.2015.02.006		In Press
55.	Gaurav Jerath, Prakash Kishore Hazam and Vibin Ramakrishnan.	bPE toolkit: toolkit for computational protein engineering.	Systems and Synthetic Biology.	8	337-341	2014
56.	A. Mehra, Gaurav Jerath, Vibin	Characterization of ICAM-1 biophore to	Journal of Molecular	57	27-35	2015

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57.	Samanta, S., Goswami, S., Ramesh, A.* and Das, G.*	A new fluorogenic probe for solution and intra-cellular sensing of trivalent cations in model human cells	Sensors and Actuators B	194	120-126	April 2014
58.	Kar, C, Samanta, S., Mukherjee, S., Datta, B. K., Ramesh, A.* and Das, G.*	A simple and efficient fluorophoric probe for dual sensing of Fe <sup>3+</sup> and F: Application to bioimaging in native cellular iron pool and live cell.	New Journal of Chemistry	38, 6	2660-2669	01 June 2014
59.	Thiyagarajan, D., Goswami, S., Kar, C., Das, G.* and Ramesh, A.*	A prospective antibacterial for drug-resistant pathogens: A dual warhead amphiphile designed to track interactions and kill pathogenic bacteria by membrane damage and cellular DNA cleavage.	Chemical Communications	50, 56	7434-7436	18 July 2014
60.	Datta, B. K., Thiyagarajan, D., Kar, C., Ramesh, A.* and Das, G.*	A novel chemosensor with visible light excitability for sensing Zn <sup>2+</sup> in physiological medium and in HeLa cells.	Organic & Biomolecular Chemistry	12, 27	4975-4982	21 July 2014
61.	Uday, P. S., Thiyagarajan, D., Goswami, S., Adhikari, M. D., Das, G.* and Ramesh, A.*	Amphiphile-mediated enhanced antibiotic efficacy and development of a payload nanocarrier for effective killing of pathogenic bacteria.	Journal of Materials Chemistry B	2, 35	5818-5827	21 September 2014
62.	Goswami, S., Thiyagarajan, D., Das, G.* and Ramesh, A.*	Biocompatible nanocarrier fortified with a dipyrindinium-based amphiphile for eradication of biofilm.	ACS Applied Materials & Interfaces	6, 18	16384-16394	24 September 2014
63.	Samanta, S., Goswami, S., Hoque, M. N., Ramesh, A.* and Das, G.*	An aggregation-induced emission (AIE) active probe renders Al(III) sensing and tracking of subsequent interaction with DNA.	Chemical Communications	50, 80	11833-11836	14 October 2014
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65.	Mishra S, Behura R, Awasthi JP, Dey M, Sahoo D, Bhowmik SSD, Panda SK, Sahoo L	Ectopic overexpression of a mungbean vacuolar Na <sup>+</sup> /H <sup>+</sup> antiporter gene (VrNHX1) leads to increased salinity stress tolerance in transgenic <i>Vigna unguiculata</i> L. Walp	Molecular Breeding	34 (3)	1345-1359	2014
66.	Mishra S, Alavilli H, Lee B-ha, Panda SK, Sahoo L	Cloning and functional characterization of a vacuolar Na <sup>+</sup> /H <sup>+</sup> antiporter gene from mungbean (VrNHX1) and its ectopic expression enhanced salt tolerance in <i>Arabidopsis thaliana</i>	Plos One	9 (10)	1-14	2014
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68.	Mishra S, Alavilli H, Lee B-ha, Panda SK, Sahoo L	Cloning and characterization of a novel vacuolar Na <sup>+</sup> /H <sup>+</sup> antiporter gene (VuNHX1) from drought hardy legume, cowpea for salt tolerance	Plant Cell Tissue Organ Culture	120 (1)	19-33	2014
	Mishra S, Panda SK, Sahoo L	Transgenic asiatic grain legumes for salt tolerance and functional genomics	Review in Agricultural Science	2	21-36	2014
69.	Nath S, Panda P, Mishra S, Dey M, Choudhury S, Sahoo L, Panda SK	Arsenic stress in rice: Redox consequences and regulation by Iron	Plant Physiology and Biochemistry	80	203-210	2014
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78.	Chaubey N and Ghosh SS	Overexpression of Granulocyte Macrophage Colony Stimulating Factor in Breast Cancer Cells Leads Towards Drug Sensitization	Applied Biochemistry and Biotechnology	175, 4	1948-1959	2015
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83.	Banerjee S, Sahoo AK, Chattopadhyay A, Ghosh S.S	Recombinant IκBα-loaded curcumin nanoparticles for improved cancer therapeutics	Nanotechnology	29;25(34)	345102 doi:10.1088/0957-4484/25/34/345102	2014
84.	Sailapu S K, Sahoo AK, Ghosh S.S and Chattopadhyay A	Hierarchical Logic Structures Based on Responsive Fluorescent Gold Nanoclusters,	Small	29; 10(20)	4067-71	2014
85.	Khandelia R, Jaiswal A, Ghosh S.S and Chattopadhyay A	Polymer coated Gold Nanoparticle-Protein Agglomerates as Nanocarriers for	J. Mater. Chem. B	2 (38)	6472 – 6477	2014

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87.	N. Bhardwaj, D. Devi, Biman B Mandal*	Tissue-engineered cartilage: the crossroads of biomaterials, cells and stimulating factors	Macromolecular Bioscience	15	153-182	2015
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89.	S. K. Nandi, B. Kundu, A. Mahato, N. L. Thakur, S. Joardar, Biman B. Mandal.	In Vitro and in vivo evaluation of natural marine sponge skeleton as a bone mimicking biomaterial	Integrative Biology	7	250-262	2015
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92.	Abshar Hasan and Lalit Pandey	REVIEW: Polymers, Surface Modified Polymers and Self Assembled Monolayers as Surface Modifying Agents for Biomaterials	Polymer-Plastics Technology and Engineering			2015 (DOI: 10.1080/03602559.2015.1021488)
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94.	A. K. Thokchom, R. Swaminathan and A. Singh	Fluid Flow and Particle Dynamics Inside an Evaporating Droplet Containing Live Bacteria Displaying Chemotaxis.	Langmuir	30	12144-12153	2014
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97.	S. Goswami, O. Diengdoh, M.B. Syiem, K. Pakshirajan and M.G. Kiran	Zn(II) and Cu(II) removal by <i>Nostoc muscorum</i> : a cyanobacterium isolated from a coal mining pit in Chiehruphi, Meghalaya, India	Canadian Journal of Microbiology	61	209-215	2015
98.	N.A. Manikandan, K. Pakshirajan and M.B. Syiem	Cu(II) removal by biosorption using chemically modified biomass of <i>Nostoc muscorum</i> – a cyanobacterium isolated from a coal mining site	International Journal of ChemTech Research	7(1)	80-92	2014
99.	V. Sinha, K. Pakshirajan and R. Chaturvedi	Chromium (VI) accumulation and tolerance by <i>Tradescantia pallida</i> : Biochemical and antioxidant study	Applied Biochemistry and Biotechnology	173	2297–2306.	2014
100.	N.K. Sahoo, K. Pakshirajan and P.K. Ghosh	Evaluation of 4-bromophenol biodegradation in mixed pollutants system by <i>Arthrobacter chlorophenolicus</i> A6 in an upflow packed bed reactor	Biodegradation	25	705-718	2014
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102.	Thomas D, Govindhan S, Baiju EC, Padmavathi G, Kunnumakkara AB, Padikkala J.	Cyperus Rotundus L. Prevents Non-Steroidal Anti-Inflammatory Drug-Induced Gastric Mucosal Damage by Inhibiting Oxidative Stress.	Journal of Basic and Clinical Physiology and Pharmacology	In press	-	-
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107.	Somasekhar R. Chinnadaiyala, Mallesh Santhosh, Naveen K. Singh, Pranab Goswami*	Alcohol oxidase protein mediated <i>in-situ</i> synthesized and stabilized gold nanoparticles for developing amperometric alcohol biosensor	Biosensors and Bioelectronics	69, 15	155–161	February 2015
108.	Seraj Ahmad and Pranab Goswami*	Application of chitosan beads immobilized <i>Rhodococcus</i> sp. NCIM 2891 cholesterol oxidase for cholestenone production.	Process Biochemistry	49, 12	2149–2157	December, 2014
109.	Mallesh Santhosh, Somasekhar R. Chinnadaiyala, Ankana Kakoti, Pranab Goswami*	Selective and sensitive detection of free bilirubin in blood serum using human serum albumin stabilized gold nanoclusters as fluorometric and colorimetric probe .	Biosensors and Bioelectronics	59	370–376	September, 2014
110.	Mitun Chakraborty, Manish Goel, Somasekhar R. Chinnadaiyala, Ujjwal Ranjan Dahiya, Siddhartha Sankar Ghosh*, and Pranab Goswami*	Molecular characterization and expression of a novel alcohol oxidase from <i>Aspergillus terreus</i> MTCC6324,	PLOS ONE	9, 4	1-19	April 21, 2014
111.	Madhuri Das, Lepakshi Barbora, Priyanki Das, Pranab Goswami*	Biofuel cell for generating power from methanol substrate using alcohol oxidase bioanode and air-breathed laccase biocathode	Biosensors and Bioelectronics	59, 15	184–191	September, 2014
112.	Somasekhar R. Chinnadaiyala, Ankana Kakoti, Mallesh Santhosh, Pranab Goswami*	A novel amperometric alcohol biosensor developed in a 3rd generation bioelectrode platform using peroxidase coupled ferrocene activated alcohol oxidase as biorecognition system	Biosensors and Bioelectronics	55, 15	120–126	May 2014,
113.	Priyamvada Jain, Babina Chakma (equal 1st author contribution), Sanjukta Patra, and Pranab Goswami*	Potential biomarkers and their applications for rapid and reliable detection of malaria.	BioMed Research International	2014	1-20	April, 2014
114.	A Ghosh, P Goswami, P Mahanta, A	Effect of carbon fiber length and graphene on carbon-polymer	Journal of Solid State Electrochemistry	18(12)	3427-3436	July, 2014

	Verma,	composite bipolar plate for PEMFC				
115.	Dixcy Jaba Sheeba J. M., Mohan, C.M., Marine Hussain, Gauri Deb, Neeraj Kumar and Anil M Limaye	Estrogen regulated extracellular matrix remodeling genes in MCF-7 breast cancer cells.	Oncology Letters	Not assigned (accepted)	--	2015
116.	Mohan C Manjegowda, Gauri Deb and Anil M Limaye	Epigallocatechin gallate induces the steady state mRNA levels of pS2 and PR genes in MCF-7 breast cancer cells.	Indian Journal of Experimental Biology	52(4)	312-6	2014
117.	Gauri Deb, V S Thakur, Anil M Limaye and Sanjay Gupta	Epigenetic induction of tissue inhibitor of matrix metalloproteinase-3 by green tea polyphenols in breast cancer cells.	Molecular Carcinogenesis	doi: 10.1002/mc.22121	--	2014
118.	Kumar P, Kumari RR, Kumar M, Kumar S, Chakrabarti A	Current practices and research updates on diabetes mellitus in canine	Veterinary World	7(11)	952-959	2014
119.	Anil Kumar, Dr.Utpal Bora	Molecular docking studies of curcumin natural derivatives with DNA topoisomerase I and II-DNA complexes.	Interdisciplinary Sciences: Computational Life Sciences	Volume No. 6 Issue No. 4	Page No. 285-291	2014
120.	Arghya Sett, Suradip Das, Dr.Utpal Bora,	Functional Nucleic-Acid-Based Sensors for Environmental Monitoring. Applied Biochemistry and Biotechnology	Applied Biochemistry and Biotechnology	Volume No. 174 Issue No. 3	Page No. 1073-1091	2014
121.	Sinha V., Pakshirajan K. and Chaturvedi Rakhi	Chromium(IV) accumulation and tolerance by <i>Tradescantiapallida</i> : Biochemical and Antioxidant Study	Appl Biochem Biotechnol	173	2297-2306	2014

**Conference/Workshop/Seminar/Symposia**

**Total No. of papers published in Conference Proceedings: 91**

Sl. No	Name of Author/s	Name of Paper	Name of Conference/Workshop/Seminar/Symposia	Date	Vol., Issue and Page No.
1.	Siddharth Nimkar, Anand B	Characterizing the role of Cas3 helicase domain in CRISPR-Cas interference	International conference on "Proteomics from Discovery to Function" at IIT Bombay		
2.	Himanshu Sharma, Anand B	Structural basis for K <sup>+</sup> dependent hydrolysis and domain crosstalk in a highly conserved GTPase Era	International conference on "Proteomics from Discovery to Function" at IIT Bombay		
3.	Yoganand K.N.R, Anand B	Molecular characterization of CRISPR adaptation in <i>Thermotoga maritima</i> MSB8	International conference on "Proteomics from Discovery to Function" at IIT Bombay		
4.	Ankita Punetha, Anand B	Features of the constituents of the Cascade-like complex in CRISPR-Cas type I-C system	Indo-US conference and workshop on "Recent Advances in Structural Biology & Drug Discovery" at IIT Roorkee		
5.	Ashutosh Gupta, Debasish Das and Arun Goyal	Improved bioethanol production from mixed pretreated leafy biomass of bamboo ( <i>Bambusadendrocalamus</i> )	Frontier Energy Research with Industry Academia Partnership (FERIAP,2015)	March 20-21, 2015	



		involving saccharification by recombinant enzymes from <i>Clostridium thermocellum</i>			
6.	Ashutosh Gupta, Debasish Das and Arun Goyal	Bioethanol production from leafy biomass of <i>Saracaindicaby</i> involving recombinant <i>Clostridium thermocellum</i> cellulase and <i>Saccharomyces cerevisiae</i> .	Symposium on Management and Procurement of Integrated Waste Management System	Feb. 6-7, 2015	
7.	Shuchi Singh, Arun Goyal and Vijayanand S. Moholkar	Bioethanol production from <i>Partheniumhysterophorus</i> (carrot grass): Ultrasound enhanced enzymatic hydrolysis and fermentation.	4th Annual International Conference on Sustainable Energy and Environmental Sciences (SEES-2015)	Feb 9-10, 2015	
8.	Ashutosh Gupta, Debasish Das and Arun Goyal	Lignocellulosic leafy biomass from <i>Saracaindica</i> as a potential feedstock for bioethanol production involving recombinant enzymes from <i>Clostridium thermocellum</i>	102 <sup>nd</sup> Indian National Science Congress	Jan 3-7, 2015	
9.	Ashutosh Gupta, Arabinda Ghosh, Debasish Das and Arun Goyal	Bioethanol production from Copra meal involving recombinant $\beta$ -(1 $\rightarrow$ 4)-Mannanase from <i>Clostridium thermocellum</i> .	29 <sup>th</sup> ACCTI Carbohydrate Conference (CARBO-XXIX) on ChemBio Innovations for Bioproducts,	December 29-31, 2014,	
10.	Damini Kothari and Arun Goyal	Isomalto-oligosaccharides from <i>Leuconostomesenteroides</i> NRRL B-1426 dextranase with functional food additive and colon cancer cells inhibiting activities.	Recent Advances in Cancer Biology and Therapeutics	Dec. 5, 2014	
11.	Aruna Rani and Arun Goyal	Role of glycosaminoglycans in cancer biology	Recent Advances in Cancer Biology and Therapeutics	Dec. 5, 2014	
12.	Arabinda Ghosh and Arun Goyal	Oligosaccharides as potential candidate in colon cancer therapy	Recent Advances in Cancer Biology and Therapeutics	Dec. 5, 2014	
13.	Manoj Gadewar, Arun Goyal, Uptal Bora	Novel herbal drug delivery system.	International Biennial Conference on New Developments in Drug Delivery from Natural Products and Traditional Medicines	Nov. 20-22, 2014	
14.	Vikky Rajulapati, Vania Fernandes, Arabinda Ghosh, Carlos M.G.A. Fontes, Arun Goyal	Cloning and expression of novel thermostable multi-substrate specific family 81 glycoside hydrolase (GH81) from <i>Clostridium thermocellum</i> ATCC 27405	55th Annual International Conference of AMI and National Conference on Empowering Mankind with Microbial Technologies (AMI-EMMT-2014),	Nov. 12-14, 2014	
15.	Shuchi Singh, Shyamali Sharma, Arun Goyal, Vijayanand S. Moholkar	Ultrasound-enhanced bioethanol production from <i>Partheniumhysterophorus</i> (carrot grass) by simultaneous saccharification and fermentation	Indo-US Conference on Advanced Lignocellulosic Biofuels,	Nov. 10-11, 2014	
16.	V.S. Moholkar, Arun Goyal and Swati Khanna	Ultrasound enhanced glycerol bioconversion: mechanistic investigations.	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	
17.	Shuchi Singh, Vijayanand S. Moholkar and Arun Goyal	Ultrasound-assisted intensification of bioethanol production from <i>Partheniumhysterophorus</i> .	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	
18.	Anil Kumar Verma, Arun Goyal, Filipe Freire, Joyeeta Mukherjee, Munishwar N.	Structure and functional analyses of recombinant glucuronoxylanase ( <i>CtXynGH30</i> ), its truncated derivative <i>Xyn30A</i> and associated family 6 carbohydrate binding module <i>CtCBM6</i> from	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	

	Gupta, Carlos M.G.A. Fontes and Shabir Najmudin	<i>Clostridium thermocellum</i> .			
19.	Arun Dhillon and Arun Goyal	Biochemical characterization of recombinant rhamnogalacturonanlyase (CrGL), a family 11 Polysaccharide Lyase (PL11) from <i>Clostridium thermocellum</i>	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	
20.	Damini Kothari and Arun Goyal	Synthesis, purification and cytotoxicity of prebiotic gentiobio-oligosaccharide from <i>Leuconostocmesenteroides</i> NRRL B-1426 dextransucrase	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	
21.	Ashutosh Gupta, Rajan Choudhary, Debasish Das and Arun Goyal	Improved recombinant enzymatic saccharification from sugarcane bagasse in the second generation bioethanol production technology	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	
22.	Aruna Rani and Arun Goyal	Deciphering the mode of action and kinetic parameters of chondroitin lyase of family 8 polysaccharide lyase (PsPL8a) from <i>Pedobacter saltans</i> DSM 12145	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention	Nov. 6-9, 2014	
23.	Arabinda Ghosh and Arun Goyal	Synthesis and purification of manno-oligosaccharides from coprameal by recombinant endo- $\beta$ -mannanase and their prebiotic and anticancer properties	International Conference on Biotechnology and Bioengineering (ICBB-2014)	Oct 28-29, 2014	
24.	Kedar Sharma and Arun Goyal	<i>In silico</i> structure prediction of a family 10 glycoside hydrolase from <i>Pedobacter saltans</i> DSM12145	Indo-US Conference and Workshop on recent Advances in Structural Biology & Drug Discovery	Oct 9-11, 2014	
25.	Shuchi Singh, Vijayanand S. Moholkar and Arun Goyal	Bioethanol production by pretreatment, hydrolysis and fermentation of <i>Partheniumhysterophorus</i>	International Conference on Energy Technology, Power Engineering and Environmental Sustainability	June 21-22, 2014	
26.	Arun Rani and Arun Goyal	Effect of metal ions on activity of recombinant Chondroitin lyase (PsPL8a) from <i>Pedobacter saltans</i> DSM12145	10 <sup>th</sup> European Symposium on Biochemical Engineering Sciences and 6 <sup>th</sup> International Conference on Industrial bioprocesses	Sep 7-10, 2014	
27.	Deeplina Das and Arun Goyal	<i>Lactobacillus plantarum</i> DM5 ascell factory for nutraceuticals production	10 <sup>th</sup> European Symposium on Biochemical Engineering Sciences and 6 <sup>th</sup> International Conference on Industrial bioprocesses	Sep. 7-10, 2014	
28.	ImmacolataVenditto, VâniaFernandes, Maja GroRydahl, Arun Goyal, Maria S.J. Centeno, LuísM.A. Ferreira, ShabirNajmudin, William G.T. Willats, Harry J. Gilbert and Carlos M.G.A. Fontes	Discovering novel CBMs families in <i>Ruminococcusflavefaciens</i> cellulosome	5th International Conference on Plant Cell Wall Biology (PCWB2014),	Jul, 27-31, 2014	
29.	ImmacolataVenditto, Ana Sofia Luis, Arun Goyal	Structure and mechanism of the endo- $\beta$ -1,4-gluconase B (CelB) from <i>Bacillus halodurans</i>	5th International Conference on Plant Cell Wall Biology (PCWB2014)	Jul, 27-31, 2014	

	A, Luis M.A. Ferreira, ShabirNajmudin, Harry J. Gilbert and Carlos M.G.A. Fontes				
30.	Shuchi Singh, Vijayanand S. Moholkar and Arun Goyal	Bioethanol production by pretreatment, hydrolysis and fermentation of <i>Partheniumhysterophorus</i> .	International Conference on Energy Technology, Power Engineering & Environmental Sustainability (ETPEES)	Jun. 21-22, 2014	
31.	Shuchi Singh, S.T.P. Bharadwaja, Vijayanand S. Moholkar and Arun Goyal	Delignification of <i>Partheniumhysterophorus</i> by ultrasound assisted alkali treatment for enzymatic hydrolysis	National Seminar on Emerging Bio-inputs in Biotechnology for a Green Environment.	May 9-10, 2014	
32.	Ashutosh Gupta, Saprativ P. Das, Debasish Das and Arun Goyal	Identification of effective pretreatment along with improved saccharification by mixed recombinant Clostridium thermocellum hydrolytic enzymes for bioethanol production from water hyacinth.	National Seminar on Emerging Bio-inputs in Biotechnology for a Green Environment	May 9-10, 2014	
33.	Arabinda Ghosh and Arun Goyal	Novel thermostable recombinant endo- $\beta$ -mannanase of <i>Clostridium thermocellum</i> for manno-oiligosaccharides production.	National Seminar on Metabolomics–A New Frontier In Natural Products Research	May 23-24, 2014	
34.	ImmacolataVendito, VâniaFernandes, Maja GroRydahl, Arun Goyal, Maria S.J. Centeno, Luís M.A. Ferreira, Harry J. Gilbert, William G.T. Willats, Carlos M.G.A. Fontes and ShabirNajmudin	Structural and functional characterization of novel Carbohydrate Binding Module families in <i>Ruminococcusflavefaciens</i> cellulome.	3rd Meeting of Synchrotron Radiation Users from Portugal (ENURS, Encontro Nacional de Utilizadores de Radiação de Portugal) and European Synchrotron Radiation Facility (ESRF)	April 8, 2014	
35.	ImmacolataVendito, Helena Santos, Arun Goyal, Luís Ferreira, Kazuo Sakka, Harry Gilbert, Carlos M.G.A. Fontes and ShabirNajmudin	Structure and characterization of the family 46 carbohydrate-binding module (CBM46) of the endo- $\beta$ -1,4-glucanase B (CelB) from <i>Bacillus halodurans</i> .	3rd Meeting of Synchrotron Radiation Users from Portugal (ENURS, Encontro Nacional de Utilizadores de Radiação de Portugal) and European Synchrotron Radiation Facility (ESRF)	April 8, 2014	
36.	Saprativ P. Das, Ashutosh Gupta, Debasish Dasand Arun Goyal	Lignocellulosicwater hyacinth ( <i>Eichhorniacrassipes</i> ) as waste for bioethanol production	Annual Symposium on Solid Waste management (Recycle 2014)	April 6, 2014	
37.	Ganar K and Kumar S	Cloning and expression of nucleocapsid protein gene of Newcastle disease virus	The international conference on host-pathogen interaction, Hyderabad, India	12-15th July 2014	ICHPI_PP0 91
38.	Das M and Kumar S	Molecular characterization of Newcastle disease virus isolated from Northeast India	Indian Virological Society-XXIII National conference on “Recent trend in Virology Research in Omics Era”	18-20 <sup>th</sup> Dec, 2014	222
39.	Kumar U and Kumar S	Genotypic and pathotypic characterization of virulent Newcastle disease virus isolated	Indian Virological Society-XXIII National conference on “Recent trend in Virology Research in Omics	18-20 <sup>th</sup> Dec, 2014	223

		from Eastern part of India	Era”		
40.	Kumar R and Kumar S	Molecular characterization of classical swine fever virus following its adaptation in porcine kidney cells	Indian Virological Society-XXIII National conference on “Recent trend in Virology Research in Omics Era”	18-20 <sup>th</sup> Dec, 2014	215
41.	R Shelke, R Das, L Rangan	Evolution and distribution of LTR-retrotransposons in <i>Pongamia</i> and its correlation with genome size	Second International Conference on Biotechnology and Bioinformatics” (ICBB-2015)	6-8 Feb 2015 Pune	Pp 27-28
42.	A Singh, A Khare, A N Panda, L Rangan	Characterization of bioactive karanjin from seeds of Karanj. <i>Best Poster Award</i>	International Conference on "Medicinal Plants and Herbal Drugs for Human” Chennai	28-31 Jan 2015 Chennai	pp 77.
43.	D Yadav, L Barbora, T Rado, R Blanchard, L Rangan, P Mahanta.	Small Scale Anaerobic Digesters: A case study in UK and India	Bioenergy: An Engine for Economic Growth in the Global South? UK Energy Research Centre and Department of Energy & Climate Change. Date & Venue:	28 January 2015, Welcome Trust, London, UK.	
44.	D Yadav, A Choudhary, D Bora, L Barbora, L Rangan, P Mahanta	Thermochemical and organic pretreatment of local lignocellulosic bioresources for energy production.	International Conference on Emerging Trends in Biotechnology, XI BRSI Convnetion Nov 2014	6-9 Nov 2014	
45.	I Jahan, A Singh, A Khare, AK Panda, L Rangan	Isolation and structure elucidation of karanjin from seeds of <i>Pongamia pinnata</i> .	4th, International Science Congress, India	8- 9 Dec 2014, Udaipur	p 67. ISCA-ISC-2014-Poster-3BS-11
46.	R Das, G Juerges, P Nick, L Rangan	Genome size of four biofuel crops	4th International Science Congress, India,	8- 9 Dec 2014, Udaipur	p 67. Poster - 3BS – 12
47.	S Ghosh, L Rangan	Unveiling the effect of plant derived labdane diterpenes as promising bactericidal and anticancer agents.	55th Annual American Society of Pharmacognosy meeting	2 - 6 August, 2014 Oxford, Mississipi, USA	Planta Med 2014; 80 - PD30 DOI: 10.1055/s-0034-1382451
48.	Satish Cingadi, Srikanth Katla, Senthilkumar Sivaprakasam	Statistical optimization of cassava fibrous waste hydrolysis by response surface methodology and use of hydrolysate based media for the production of optically pure D-Lactic acid.	International conference on emerging trends in Biotechnology (ICETB-2014), New Delhi, India	November 6-9, 2014	
49.	Naresh Mohan, Rengesh Balakrishnan, Senthilkumar Sivaprakasam	Optimized production of ultra-low molecular weight hyaluronic acid production by <i>S.thermophilus</i> employing dairy industrial waste supplement	International conference on emerging trends in Biotechnology (ICETB-2014), New Delhi, India	November 6-9, 2014	
50.	Arun E.V.R, Katla Srikanth, Adityabarna Pal, Senthilkumar Sivaprakasam	Kinetic modelling of D-lactic acid production from cassava fibrous waste by homo-fermentative lactic acid bacteria	2 <sup>nd</sup> Symposium in Advances in Sustainable Polymers, IIT Guwahati	January 21 – 22, 2015	
51.	Subbi Rami Reddy Tadi, Srikanth Katla, Anil M Limaye, Senthilkumar Sivaprakasam.	Statistical optimization of D-lactic acid production in palmyra jaggery based fermentation media	Bioprocessing India 2014	December 17 – 20, 2014	
52.	Kumar S, Alam S, Sahoo DP, Mishra	Induced overexpression of <i>Arabidopsis NHX1</i> improves	Vth Scientific Workshop entitled “Biotechnology Research in North	18 <sup>th</sup> -20 <sup>th</sup> Septembe	

	S, Dey M, Panda SK., Sahoo L	salinity stress tolerance in mungbean	East India: Present & Future” organized by the DBT-AAU Centre, Assam Agricultural University, Jorhat	r 2014	
53.	Saha B, Awasthi JP, Dey M, Mishra S, Panda SK, Sahoo L	Constitutive overexpression of Arabidopsis LEA protein, AtLEA4-1 confers drought tolerance in transgenic mustard	Vth Scientific Workshop entitled “Biotechnology Research in North East India: Present & Future” organized by the DBT-AAU Centre, Assam Agricultural University, Jorhat	18 <sup>th</sup> -20 <sup>th</sup> September 2014	
54.	Barik CR, Goud VV, Sahoo L	Qualitative phytochemical investigation and characterization of Seabuckthorn ( <i>Hippophae salicifolia</i> D. Don) plant leaves from Northeastern India	New Frontier in Chemical Engineering & Science, Chemcon-2014, Punjab University, Chandigarh	27 <sup>th</sup> -30 <sup>th</sup> December 2014	
55.	Barik CR, Deshavath NN, Goud VV, Sahoo L	Morphometric, Pharmacognostical and Physicochemical Characterization of Sea Buckthorn ( <i>Hippophaesalicifolia</i> D.Don): The Himalayan Wonder Plant	Asian Plant Science Conference, Bhairahawa, Nepal	1 <sup>st</sup> -3 <sup>rd</sup> November 2014	
56.	Barik CR, Sahoo L, Goud VV	Identification of Some Potential Energy Plants from North East India for Biomass Energy Production: an Agro-taxonomic Approach	Frontier Energy Research with Industry Academia Partnership Workshop, FERIAP-2015, Centre for Energy, IIT Guwahati, Guwahati	20 <sup>th</sup> -21 <sup>st</sup> March 2015	
57.	Maravi DK, Goud VV, Sahoo L	Enhanced triacylglycerol (TAG) accumulation synthesis in <i>Jatropha curcas</i> leaves upon following constitutive overexpression of an Arabidopsis diacylglycerol acyl transferase 1 (AtDGAT1)	National Conference on "Biotechnology and Human Welfare: New Vistas" organized by Department of Biotechnology, VBS Purvanchal University, Jaunpur	21 <sup>st</sup> -22 <sup>nd</sup> March 2015	
58.	P Sukumar	Formulating Proposal by Young Researchers: Research Question & Objectives	Symposia on Research Methodology and Biomaterials for Human applications for Clinical Translational Research, NEIGRIHMS, Shillong	20&21 Mar 2015	1; 122
59.	P Sukumar	Step by Step: Components of a Research Proposal	Symposia on Research Methodology and Biomaterials for Human applications for Clinical Translational Research, NEIGRIHMS, Shillong	20&21 Mar 2015	1; 122
60.	P Sukumar	Translational Research in Diabetes & Cardiovascular Diseases	Symposia on Research Methodology and Biomaterials for Human applications for Clinical Translational Research, NEIGRIHMS, Shillong	20&21 Mar 2015	1; 123
61.	P Sukumar	Diabetes & Vascular Diseases Journey into the riddle of antioxidants by targeting NADPH oxidase	International Conference on Multidisciplinary Research-2014, Indonesia	16-18 Oct 2014	1; 22
62.	Barman, A., Gohain, D. and Tamuli, R.	Functional analysis of calcium signaling genes and a novel approach to study direct protein-protein interaction in <i>Neurospora crassa</i> .	Research Conclave, IIT Guwahati, India.	March 23, 2015.	
63.	Laxmi V., Kumar A., Tamuli R.	Studies on essential calcium signaling genes calmodulin and calcineurin in <i>Neurospora crassa</i> .	Research Conclave, IIT Guwahati, India.	March 23, 2015.	
64.	Barman, A., Gohain, D., Laxmi, V., Deka, R., Kumar, R. and	Cellular functions of calcium signaling machinery in the model filamentous fungus <i>Neurospora crassa</i> .	Molecular intricacies of Plant-pathogenic micro-organisms (MIPPM-2015), Tezpur University, Tezpur, India.	February 21-22, 2015.	

	Tamuli, R.				
65.	Laxmi V., Tamuli R.	Expression studies of important calcium signaling genes in <i>Neurospora crassa</i>	National Symposium on Biophysics and Golden Jubilee Meeting of Indian Biophysical Society (IBS-2015), Jamia Millia Islamia, New Delhi 10025, India.	February 14-17, 2015.	
66.	Barman, A., Gohain, D. and Tamuli, R.	Reactive oxygen species and cell signaling in <i>Neurospora crassa</i> .	International conference on disease biology and therapeutics (ICDBT-2014), Institute of Advanced study in Science and Technology, Guwahati, India.	December 3-5, 2015.	
67.	Gohain, D., Barman, A. and Tamuli, R.	Calcineurin and its role in drug resistance in pathogenic fungi.	International Conference on Disease Biology and Therapeutics-2014 (ICDBT-2014), Institute of Advanced study in Science and Technology, Guwahati, India	December 3-5, 2015.	
68.	Laxmi V., Tamuli R.	Studies of calcium signaling pathway mediated by calmodulin and related proteins in <i>Neurospora crassa</i> .	International Conference on Disease Biology and Therapeutics-2014 (ICDBT-2014), Institute of Advanced Study in Science and Techology, Guwahati, India.	December 3-5, 2015.	
69.	Tamuli R. Borkovich, K.	Studies on essential calcium-signaling genes using a conditional promoter-based system.	Riverside Postdoctoral Association Symposium (RPA-2014), University of California Riverside, USA.	September 23-24, 2014.	
70.	Archita Ghoshal and Siddhartha Sankar Ghosh Topic: Functional Implications of Recombinant sFRP1	5th International Conference on Stem Cells and Cancer (ICSCC-2014): Proliferation, Differentiation and Apoptosis	Jawaharlal Nehru University, New Delhi, November	8-10, 2014	International 1
71.	Sharmila Narayanan and Siddhartha Sankar Ghosh Topic: Functional characterization of bacterially expressed recombinant phytaspase	5th International Conference on Stem Cells and Cancer (ICSCC-2014): Proliferation, Differentiation and Apoptosis	Jawaharlal Nehru University, New Delhi, November	8-10, 2014	International 1
72.	Md. Asif Raza and Siddhartha Sankar Ghosh Topic: Application of redesigned <i>E.coli</i> cytosine deaminase in the perspective of cancer therapeutics	5th International Conference on Stem Cells and Cancer (ICSCC-2014): Proliferation, Differentiation and Apoptosis	Jawaharlal Nehru University, New Delhi, November	8-10, 2014	International 1
73.	Archita Ghoshal and Siddhartha Sankar Ghosh Topic: Functional Implications of Recombinant sFRP1	5th International Conference on Stem Cells and Cancer (ICSCC-2014): Proliferation, Differentiation and Apoptosis	Jawaharlal Nehru University, New Delhi, November	8-10, 2014	International 1
74.	Abshar Hasan and Lalit Pandey	Polymers, surface modified polymers and surfaces with Self	International Conference on Disease Biology and Therapeutics-2014 (ICDBT2014), Guwahati, India,	December 3-5, 2014	276-277

		Assembled Monolayers as surface modifying agents for Biomaterials			
75.	M.G. Kiran, K. Pakshirajan and G. Das	Heavy metal removal by sulfate reduction using anaerobic sludge biomass from a wastewater treatment plant	4 <sup>th</sup> International Conference on Hydrology and Watershed Management (ICHWAM 2014) with a focal theme on Ecosystem Resilience-Rural and Urban Water Requirements	29 <sup>th</sup> October-1 <sup>st</sup> November 2014	379-385
76.		Investigating the role of a conserved hypothetical protein of <i>Leishmania donovani</i>	83 <sup>rd</sup> Annual Meeting of Society of Biological Chemists (SBCI)	17-21 December 2014	
77.	Shalini Singh, Mousumi Das, Ruchika Bhardwaj and Vikash Kumar Dubey	Is Spermidine Synthase only a redox enzyme in <i>Leishmania donovani</i> ?	83 <sup>rd</sup> Annual Meeting of Society of Biological Chemists (SBCI)	17-21 December 2014.	
78.	Sushant Singh, Anil Verma and Vikash Kumar Dubey	Oxidative Stress Environment Superoxide Dismutase; A Novel Antioxidative Protein Alleviating The Oxidative Stress Environment. Sustainable Development of Environmental Systems	IIT Guwahati	June 20-21, 2014	
79.	Ambuj Srivastava, Shankar Prasad Kanaujia	Interfacial analysis of oligomeric proteins in improving molecular docking algorithms.	INDO-US CONFERENCE and WORKSHOP on “Recent advances on structural Biology & Drug Discovery (RASBDD-IIT-2014) Indian Institute of Technology Roorkee	October 9-11, 2014	
80.	Mallesh Santhosh, Somasekhar R. Chinnadayala, Ankana Kakoti, Pranab Goswami*	Human serum albumin stabilized gold nanoclusters as a novel fluorescent and colorimetric probe for the detection of bilirubin-IX.	24 <sup>th</sup> Anniversary World Congress on Biosensors (Biosensors 2014) organized by Elsevier in association with Biosensors & Bioelectronics, at Melbourne, Victoria, Australia	27-30 May 2014.	P2-148.
81.	Madhuri Das and Pranab Goswami	Enzyme cascade based bioanode for complete utilization of methanol substrate to generate power in biofuelcell.	Frontier Energy Research with Industry Academia partnership	20-21 <sup>st</sup> March 2015.	Page 35
82.	Sharbani Kaushik and Pranab Goswami	Studies on cyanobacteria for its potential biofuelcell applications	Frontier Energy Research with Industry Academia partnership	20-21 <sup>st</sup> March 2015.	Page 38
83.	Priyanki Das, Madhuri Das, Lepakshi Barbora, and Pranab Goswami	Power generation from alcohol biofuelcell utilizing alcohol oxidase and laccase as biocatalysts	Frontier Energy Research with Industry Academia partnership	20-21 <sup>st</sup> March 2015.	Page 39
84.	Gauri Deb, Shalinee Jha, Sahil Batra, Shankar Prasad Kanaujia and Anil M Limaye*	Inhibition of matrix metalloproteinase-2 (MMP-2) by the green tea polyphenol Epigallocatechin-3-gallate (EGCG): mechanistic insights from biochemical and <i>in silico</i> studies.	34 <sup>th</sup> Annual Convention of Indian Association for Cancer Research on “Cancer research: from bench to bedside”, held in Jaipur	Feb 19-21, 2015	
85.	Bajpai R. and Chaturvedi Rakhi*	Production of doubled haploid embryos following colchicine treatment of microspore derived embryos of <i>Camellia assamica</i> subsp. <i>Assamica</i> (Masters)	Asian Plant Science Conference (APSC), Bhairawa, Nepal.	November 1-3, 2014	29
86.	Srivastava V, Jannat W, Chaturvedi Rakhi*	Establishment of <i>in vitro</i> culture and micropropagation protocol to raise high yielding true-to-type plantations of <i>Tinospora cordifolia</i> (willd.) Miers ex Hook.	Asian Plant Science Conference (APSC), Bhairawa, Nepal.	November 1-3, 2014	29

		F. & Thoms			
87.	Dutta R, Srivastava V, Chaturvedi Rakhi*	Extraction and Identification of Biologically Active Compounds from <i>In vivo</i> and <i>In vitro</i> Cultured <i>Tinospora cordifolia</i> (willd.) Miers ex Hook .F. Thomas	Asian Plant Science Conference (APSC), Bhairawa , Nepal.	November 1-3, 2014	59
88.	Dr. Damaris Magdalene, D. Bithiah Grace Jaganathan	Extra Ocular Muscles and Stem Cells	AAPOS Annual Meeting at New Orleans, USA	Mar 25-29, 2015	
89.	Vinoh Swu, Suraj Patil, Bithiah Grace Jaganathan	Breast cancer cell migration	5 <sup>th</sup> Annual International Conference on Advances in Biotechnology, IIT Kanpur	Mar 13-15, 2015	
90.	Darilang Mawrie, Atul Kumar, Damaris Magdalene, Bithiah Grace Jaganathan	Characterisation of stem cells isolated from extra ocular muscle tissue	5 <sup>th</sup> International Conference on Stem Cells and Cancer (ICSCC-2013): Proliferation, Differentaition and Apoptosis, New Delhi	Nov 8-10 2014	
91.	Chinnapaka Somaiah, Atul Kumar, Jina Bhattacharyya, Bithiah Grace Jaganathan	The Effect of Extracellular Matrix on Mesenchymal. Stem Cells	5 <sup>th</sup> International Conference on Stem Cells and Cancer (ICSCC-2013): Proliferation, Differentaition and Apoptosis, New Delhi	Nov 8-10 2014	

**Book, Book Chapter, etc.**

**Total No. of Books published: 01**

**Total No. of Book Chapters published: 14**

Sl. No.	Name of Author/s	Name of Book	Publisher	Volume and Issue No. (If any)	Total Page No.	ISBN	Year of Publication
1	Ajaikumar B. Kunnumakkara	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications , Hackensack, NJ 07601,USA		404	978-981-4508-88-9	Dec 2014

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
1.	Maravi DK, Mazumdar P, Alam S, Goud VV and Sahoo L	Jatropha ( <i>Jatropha curcas</i> L.).	Agrobacterium Protocols (Kan Wang, Editor), Methods in Molecular Biology, Springer Protocols	Humana Press	Vol. 2	25-36	978-1-4939-1695-5	2015
2.	Behura R, Kumar S, Saha B, Panda MK, Dey M, Mishra S, Alam S, Sahoo DP, Sugla T, Panda SK and Sahoo L	Cowpea ( <i>Vigna unguiculata</i> L. Walp)	Agrobacterium Protocols (Kan Wang, Editor), Methods in Molecular Biology, Springer Protocols	Humana Press	Vol. 2	255-264	978-1-4939-1658-0	2015
3.	Salma Jasmine and Biman B. Mandal. Edited by Prof. S. C.	Non-mulberry silk biomaterials for tissue engineering.	Silk biomaterials in tissue engineering	Woodhead Publishing group, India	01	---	978-0-85709-699-9	2014



	Kundu		and regenerative medicine					
4.	CS Krishna Murthy and Biman B. Mandal. Edited by G.P. Kothiyal and A. Srinivasan	Synthetic and Natural fibers based biomaterials	Recent trends in biomaterials research	Pan Stanford Publishing, Singapore	01	---	978-9-81461-398-9	2015
5.	Guruvayoorappan C, Sakthivel KM, Padmavathi G, Bakliwal V, Monisha J and Kunnumakkara AB	Cancer Preventive and Therapeutic Roles of Fruits and Vegetables: An Overview	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications, Hackensack, NJ 07601,USA	1	1-52	978-981- 4508-88-9	Dec 2014
6.	Jagadeeshan S, Kunnumakkara AB, Nair AS	Anticancer Activities of Fruits and Vegetables Against Gynecological Cancers	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications, Hackensack, NJ 07601,USA	1	131-159	978-981- 4508-88-9	Dec 2014
7.	Mathew AJ, Padmavathi G, Kunnumakkara AB, Atulya M	Cancer Chemopreventive and Therapeutic Properties of Fruits and Vegetables Against Head and Neck Malignancies	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications, Hackensack, NJ 07601,USA	1	161-183	978-981- 4508-88-9	Dec 2014
8.	Sakthivel KM, Kunnumakkara AB, Guruvayoorappan C	Cancer Preventive and Therapeutic Properties of Fruits and Vegetables Against Lung Cancer	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications, Hackensack, NJ 07601,USA	1	221-250	978-981- 4508-88-9	Dec 2014
9.	Pandey MK, Kunnumakkara AB, Amin SG	Prostate Cancer: How Helpful are Natural Agents for Prevention?	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications, Hackensack, NJ 07601,USA	1	251-275	978-981- 4508-88-9	Dec 2014
10.	Monisha J, Padmavathi G, Bakliwal V, Katre N, Padikkala J, Kunnumakkara AB	Cancer Preventive and Therapeutic Properties of Fruits and Vegetables Against Commonly Occurring Cancers in Humans	Anticancer Properties of Fruits and Vegetables: A Scientific Review	World Scientific Publications, Hackensack, NJ 07601,USA	1	337-366	978-981- 4508-88-9	Dec 2014
11.	Suradip Das, Dr. Utpal Bora & B.B. Borthakur	Applications of silk biomaterials in tissue engineering and regenerative medicine	Silk biomaterials for tissue engineering and regenerative medicine ed. Kundu, S.C.	Woodhead Publishing Limited		41-77	ISBN-13: 978 0 85709 699 9	27 March 2014

			Woodhead					
12.	Singh M. and Chaturvedi Rakhi*	An appraisal on <i>in vitro</i> conservation and biotechnological Interventions in <i>Spilanthes acmella</i> Murr	Plant Reproductive Biology and Conservation	I.K. International Publishers, New Delhi, India		299-319	978-93-82332-90-9	2015
13.	Srivastava P., Singh M. and Chaturvedi Rakhi*	Herbal medicine and biotechnology for benefit of human health	Animal Biotechnology: Models in Discovery and Translation	Elsevier, Inc. Waltham, MA , USA		563-575,	9780124160026	2014
14.	Mishra V.K. and Chaturvedi Rakhi*	An overview on haploid production in trees	Tree Biotechnology	CRC press, New Delhi, India		151-186	978-1-4665-9714-3	2014

#### 14. Conferences/Workshops/Symposia Attended: International, National

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
Prof. Arun Goyal.	Synthesis and purification of manno-oligosaccharides from coprameal by recombinant endo- $\beta$ -mannanase and their prebiotic and anticancer properties.	BITS Pilani, Dubai Campus, Dubai, UAE	Oct 28-29, 2014	International
Prof. Arun Goyal	Lactobacillus plantarum DM5 as cell factory for nutraceuticals production	Lille, France.	September 7-10, 2014	International
Prof. Arun Goyal	Structure and functional analyses of recombinant glucuronoxylan-xylanohydrolase (CtXynGH30), its truncated derivative Xyn30A and associated family 6 carbohydrate binding module CtCBM6 from <i>Clostridium thermocellum</i>	Jawaharlal Nehru University, New Delhi, India.	Nov 6-9, 2014	National
Dr. Kannan Pakshirajan	Hostel Management in Centrally Funded Technical Institutions	IIT Madras, Chennai	April 9-10, 2014	National
L Rangan	Recent Advances in BioSciences and Technology	Coimbatore, TN	25-26 Feb 2015	National
L Rangan	Indo_UK Seminar Series on Biomass waste utilization	Jadavpur, Kolkata	11-14 Feb 2015	National
L Rangan	15 Indo-US Flow Cytometry Workshop	Lucknow, UP	29-31 Oct 2014	National
L Rangan	TCS Annual Symposium	AIIMS, New Delhi	25-27 Oct 2014	National
Dr.Senthilkumar Sivaprakasam	Bioprocessing India 2014	ICT, Mumbai		National
Ranjan Tamuli	Molecular intricacies of Plant-pathogenic micro-organisms (MIPPM-2015).	Tezpur University, India.	February 21-22, 2015.	International
Dr. Biman B. Mandal	Advances in Polymer Science & Technology (APST-2015) National conference.	Guwahati, India	March 13, 2015	National
Dr. Biman B. Mandal	International Silk Conference.	Fudan and Soochow University, Shanghai, China	October 8-12, 2014	International
Dr. Lalit Pandey	Recent Advances in Cancer Biology and Therapeutics	IIT Guwahati	December 5, 2014	National
R. Swaminathan	International Conference on Mathematical and Computational Biology (ICMCB)	IIT Kanpur	28 Feb-3 Mar, 2015	International

R. Swaminathan	National Symposium on Biophysics and Golden Jubilee meeting of the Indian Biophysical Society	Jamia Millia Islamia, New Delhi	14-17 Feb 2015	National
R. Swaminathan	National Workshop on Fluorescence and Raman techniques	Indian Institute for Science Education and Research, Pune	15-19 Dec 2014	National
R. Swaminathan	Gordon Research Conference: Intrinsically Disordered Proteins	Stonehill College, Boston, USA	6-11 July 2014	International
Ajaikumar B. Kunnumakkara	34 <sup>th</sup> Convention of Indian Association for Cancer Research, February 19-21, Jaipur	Jaipur	2015	National
Ajaikumar B. Kunnumakkara	Educational empowerment held at SN Higher Secondary School, Nattika, Thrissur, Kerala	Kerala	2015	National
Ajaikumar B. Kunnumakkara	National Conference on "Advance in Cancer Genomics" Mizoram University	Mizoram	2014	National
Professor Pranab Goswami	24 <sup>th</sup> Anniversary World Congress on Biosensors (Biosensors 2014) organized by Elsevier in association with <i>Biosensors &amp; Bioelectronics</i>	Melbourne, Victoria, Australia	27-30 May 2014	International

**15. Invited Lectures Of Faculty: In India, Abroad (Please do not repeat entries from Sl. No. 14)**

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
B. Anand	"Functional Insights into the Mechanism of Prokaryotic Specific RNA Guided Gene Targeting CRISPR-Cas system"	National Symposium on Biophysics & Golden Jubilee meeting of Indian Biophysical Society	Jamia Millia Islamia, New Delhi	16 Feb, 2015
B. Anand	"Insights into the mechanism of CRISPR RNA maturation in CRISPR-Cas type I-C system"	Indo-US conference and workshop on "Recent Advances in Structural Biology & Drug Discovery"	IIT, Roorkee	11 Oct, 2014
Prof. Arun Goyal	Structure and functional analyses of recombinant glucuronoxylan-xylohydrolase (CtXynGH30), its truncated derivative Xyn30A and associated family 6 carbohydrate binding module CtCBM6 from <i>Clostridium thermocellum</i>	International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention.	Jawaharlal Nehru University, New Delhi, India.	Nov 6-9, 2014
Prof. Arun Goyal.	Synthesis and purification of manno-oligosaccharides from coprameal by recombinant endo- $\beta$ -mannanase and their prebiotic and anticancer properties.	International Conference on Biotechnology and Bioengineering (ICBB-2014)	BITS Pilani, Dubai Campus, Dubai, UAE	Oct 28-29, 2014
Prof. Arun Goyal	Lactobacillus plantarum DM5 as cell factory for nutraceuticals production	10th European Symposium on Biochemical Engineering Sciences and 6th International Conference on Industrial bioprocesses	Lille, France.	September 7-10, 2014
Dr. Kannan Pakshirajan	Heavy metal removal by bioaccumulation and biosorption using <i>Nostoc</i>	Bhabha Atomic Research Centre	Mumbai	February 3-5, 2015

	<i>muscorum</i> , a cyanobacterium isolated from a coal mining area in Meghalaya, India			
Dr. Kannan Pakshirajan	Biorefinery: future green Industry	GMR Institute of Technology	Rajam, Srikakulam	December 12-13, 2014
Dr. Kannan Pakshirajan	Principles and applications of bioremoval of metals and metallolids	Centre for the Environment, IIT Guwahati	Guwahati	June 20-21, 2014
Dr. Vikash Kumar Dubey	Modern approaches against Leishmania parasite.	Indian Science congress local chapter	Imphal, Manipur University	21 and 22nd January.
Dr. Vikash Kumar Dubey	Vikash Kumar Dubey, Redox metabolism of Leishmania: A promising target for drug discovery	8 <sup>th</sup> Annual Convention of the Association of Biotechnology and Pharmacy (ABAP)	School of Biotechnology, Devi Ahilya University, Indore, India	18-20 December, 2014
Dr. Vikash Kumar Dubey	Admiring spermidine for its assorted functions: An integrated computational and Biochemical studies.	7 <sup>th</sup> National Symposium Cum workshop on “Recent Trend in Structure Bioinformatics and Structure based drug designing.	Algappa University, Karaikudi - 630 003, Tamilnadu, India	24 <sup>th</sup> -27 <sup>th</sup> Feb 2015
Dr. Vikash Kumar Dubey	Recent advancement in Leishmania research	QIP- Short Term Course on "Advances in Biomedical Engineering 2015"	Indian Institute of Technology Guwahati	Feb 25- March 1, 2015
Dr. Vikash Kumar Dubey	Recent development on Leishmania research: A promising drug candidates in pipeline.	DSIR workshop	Indian Institute of Technology Guwahati	
L Rangan	Morphological, biochemical and genomic studies in Karanaj	Hindustan College of Arts and Sciences	Coimbatore	26 Feb 2015
L Rangan	Energy recovery from waste legume	Jadavpur University	Jadavpur	12 Feb 2015
L Rangan	Application of Flow Cytometry in Plant Science	MNIT	Allahabad	28 Oct 2014
L Rangan	IPR and Biotechnology	IITG	Guwahati	12 Dec 2014
L Rangan	Sophisticated Instruments in Plant Science Research	IITG	Guwahati	25 Nov 2014
Dr.Senthilkumar Sivaprakasam	Real-time monitoring and control of bioprocess systems: Challenges & Opportunities	Dept. of Instrumentation Engineering, Madras Institute of Technology	Chennai	13 <sup>th</sup> March 2015
Dr.Senthilkumar Sivaprakasam	BioProcess Analytical Technology	Faculty Quality Improvement Programme organized by AICTE, PSG College of Technology	Coimbatore	June 28, 2014
Dr.Senthilkumar Sivaprakasam	Industrial waste valorization of potential raw feedstock for biopolymer production – Designed biomass approach	Centre for Sustainable Polymers, IIT Guwahati	Guwahati	January 21 – 22, 2015
Dr.Senthilkumar Sivaprakasam	Real-time monitoring and control of bioprocess systems: Challenges & Opportunities	Dept. of Instrumentation Engineering, Madras Institute of Technology	Chennai	13 <sup>th</sup> March 2015
Aiyagari Ramesh	1. Chemistry-Biology Interface: Nanomaterials, Synthetic Amphiphiles and Small Molecules for Sensing and Antibacterial Applications 2. Fluorescence-based Tools in Antimicrobial Assay and	Central Food Technological Research Institute (CFTRI)	Mysore	4-5 September, 2014

	Sensing Applications			
Aiyagari Ramesh	Nanomaterials and Synthetic Amphiphiles as Potent Antibacterials	Indian Institute of Technology Guwahati	Guwahati	4 December, 2014
L Sahoo	Bioresources and Agriculture in India	Gifu University	Gifu (Japan)	12 June 2014
L Sahoo	Agriculture and Bioresources of India	Gifu Norin Senior High School	Gifu (Japan)	17 June 2014
L Sahoo	Culture and Heritage of India	Gifu Norin Senior High School	Gifu (Japan)	17 June 2014
L Sahoo	Technology and International Cooperation in India	Gifu Norin Senior High School	Gifu (Japan)	17 June 2014
L Sahoo	International Cooperation in Plant Functional Genomics Research	KAZUSA DNA Research Institute	Tokyo (Japan)	9 July 2014
L Sahoo	Updates on crop transformation in National Symposium on Advances in Biotechnology for Crop Improvement (in absentia)	Eternal University	Himachal Pradesh	12 July 2014
L Sahoo	Genetically Modified Crops in Agriculture	Gifu Norin Senior High School	Gifu (Japan)	17 July 2014
L Sahoo	Generation of Biotic and Abiotic stress tolerant Asiatic grain legumes	Hokkaido University	Sappore (Japan)	25 July 2014
L Sahoo	Exploring Japan-India Cooperation for Food and Nutritional Ventures	CHUBU Research Foundation	Gifu (Japan)	28 July 2014
L Sahoo	Academic-Industry cooperation for International joint education in Food and Nutrition	KAO Corporation	Tokyo (Japan)	31 July 2014
L Sahoo	Food & Nutritional Ventures in Northeast India: Japan-India Cooperation in UGSAS-GU 12 Round Table and Symposium 2014	United Graduate School of Agricultural Science (Gifu -Shizouka University)	Gifu (Japan)	5 August 2014
L Sahoo	Japan-India cooperation for biofuel research	Frontier Research Center (Biotechnology) of TOYOTA Central R&D Labs	Aichi (Japan)	6 August 2014
L Sahoo	Genetic improvement of orphan grain legumes for abiotic stress tolerance in Vth workshop under the DBT-AAU Center "Biotechnology Research in Northeast India: Present & Future	Assam Agricultural University	Jorhat	18 Sep 2014
L Sahoo	Crop Improvement Program at IIT Guwahati	Indian Institute of Soil Science	Bhopal	3 November 2014
L Sahoo	Agriculture and Plant Biotechnology in India	Tezpur University	Tezpur	24 November 2014
L Sahoo	Bioinspired Innovations at Symposium organized by Institutional Biotech Hub at Department of Biotechnology, Gauhati University	Gauhati University	Guwahati	14 February 2015
L Sahoo	How to write a good research paper in Continued Medical Education Program Workshop by Ministry of AYUSH, Govt. of India	Regional Research Institute for Homeopathy	Guwahati	23 March 2015
L Sahoo	Bioresources and Agriculture in	Gifu University	Gifu (Japan)	12 June

	India			2014
L Sahoo	Agriculture and Bioresources of India	Gifu Norin Senior High School	Gifu (Japan)	17 June 2014
L Sahoo	Culture and Heritage of India	Gifu Norin Senior High School	Gifu (Japan)	17 June 2014
L Sahoo	Technology and International Cooperation in India	Gifu Norin Senior High School	Gifu (Japan)	17 June 2014
L Sahoo	International Cooperation in Plant Functional Genomics Research	KAZUSA DNA Research Institute	Tokyo (Japan)	9 July 2014
L Sahoo	Updates on crop transformation in National Symposium on Advances in Biotechnology for Crop Improvement (in absentia)	Eternal University	Himachal Pradesh	12 July 2014
Dr Piruthivi Sukumar	Insulin resistance induced endothelial dysfunction: targeting NADPH oxidase	King George's Medical University	Lucknow	26 <sup>th</sup> Nov 2014
Dr Piruthivi Sukumar	Diabetes & Cardio-vascular Diseases	Dr.B. Lal Institute of Biotechnology	Jaipur	25 <sup>th</sup> Sep 2014
Dr Piruthivi Sukumar	Diabetes induced Cardio-Vascular Diseases	St. Anthony's College	Shillong	23 <sup>rd</sup> Aug 2014
Dr Piruthivi Sukumar	Diabetes & Vascular Diseases	Department of Biotechnology & Bioinformatics, NEHU	Shillong	22 <sup>nd</sup> Aug 2014
Dr Bose B	Emergence of Cellular Heterogeneity in Expression of an Oncofetal Protein	34 <sup>th</sup> Annual Convention of Indian Association for Cancer Research (IACR2015)	Jaipur	February 2015
Dr Bose B	Cellular Heterogeneity in Expression of an Oncofetal Protein	83 <sup>rd</sup> Annual Meeting of Society Of Biological Chemists (India),	Bhubaneswar	December 2014
Dr Bose B	All Cells are Equal, But Some are More Equal Than Others"	National Seminar on Recent Advances in Biotechnological Research in North East India: Challenges and Prospects,	Tezpur University	November 2014
Dr Bose B	Emergence of Cellular Heterogeneity in Expression of an Oncofetal Protein	34 <sup>th</sup> Annual Convention of Indian Association for Cancer Research (IACR2015)	Jaipur	February 2015
Dr Shankar Prasad Kanaujia	Molecular modeling in drug design	Indian Institute of Technology Guwahati	Guwahati	November 7, 2014
Prof. S. S. Ghosh	Nanoscale Materials in Cancer Theranostics	Indo-Swiss one day workshop on August 30 <sup>th</sup> Organized by the Centre for Nanotechnology, IITG	IIT Guwahati	30 <sup>th</sup> August 2014
Prof. S. S. Ghosh	Nanoclusters as Logic Gate and Cancer Theranostics	National Seminar on Recent Advances in Biotechnological Research in North East India: Challenges and Prospects Organized by Department of Molecular Biology and Biotechnology, Tezpur University	Tezpur University	28 <sup>th</sup> November 2014

Prof. S. S. Ghosh	FICS-2014	Session Chair Organized by the Department of Chemistry IITG	IIT Guwahati	5 <sup>th</sup> December 2014
Prof. S. S. Ghosh	Nanotechnology in Cancer Theranostics and Protein Therapeutics	New Advances and Horizons in Nanoscience And Nanotechnology (NanoSci-2014), IASST, Guwahati	IIT Guwahati	20 <sup>th</sup> December 2014
Prof. S. S. Ghosh	Nanotheranostics for integration of imaging and targeted drug delivery	National Conference on Chemistry of Chalcogens and Related Topics (NC3-2015) Organized by Dept. of Applied Chemistry, DIAT, Pune	Defence Institute of Advanced Technology (Deemed University) Pune,	12th January 2015
Prof. S. S. Ghosh	A new paradigm for targeted suicide gene therapy	T TE-QIP Short term course on "Theoretical and practical aspects of cancer research" by the Department of Biosciences and Bioengineering	IIT Guwahati	6 <sup>th</sup> February 2015
Prof. S. S. Ghosh	Polymer-Based Nanotheranostics: A single platform for bio-imaging and targeted delivery	Short term course on "Advances in Biomdeical Research" by the Department of Biosciences and Bioengineering	IIT Guwahati	26 <sup>th</sup> February 2015
Dr. Biman B. Mandal	Silk Based Tissue Engineering	KTH, School of Biotechnology, AlbaNova University Centre.	Stockholm, Sweden	October 27, 2014
Dr. Biman B. Mandal	Stem cell based Bioengineering of Tissues	UGC-NRCM Workshop on Biomaterials, Department of Materials Engineering.	IISC, Bangalore	May 23-25, 2014
Dr. Biman B. Mandal	Silk Based Tissue Engineering	Advances in Biomedical Engineering, QIP programme.	IIT Guwahati	February 26, 2015
Dr. Biman B. Mandal	Silk Biomedicals	Micro-Manufacturing for Biomedical Applications, QIP programme.	IIT Guwahati	February 23, 2015
Dr. Biman B. Mandal	Silk Biomaterials for Human Tissue Engineering	IIT Guwahati – Kyoto Institute of Technology Japan, Joint Symposium on Biobased Materials.	IIT Guwahati	January 20, 2015
Dr. Biman B. Mandal	Silk Biomaterials for Human Tissue Engineering	Smart Materials and Their Applications in Nanotechnology, QIP programme.	IIT Guwahati	December 23, 2014
Dr. Biman B. Mandal	Tissue Engineered Implants for Human Applications	Sophisticated Instruments in Interdisciplinary Research, TEQIP programme.	IIT Guwahati	November 25, 2014
Prof. R. Swaminathan	Can macromolecular crowding regulate enzyme substrate specificity?	Indian Institute of Science	Bengaluru	25th March, 2015
Prof. R. Swaminathan	Protein Aggregation and Disease: Structure, Function	National Institute of Pharmaceutical	Guwahati	25 <sup>th</sup> November

	and Dynamics of Hen Lysozyme Aggregates	Education and Research		2014
Professor Pranab Goswami	Biosensor and enzymatic biofuelcell: Emerging topics in healthcare and biomedical engineering,	Department of Biotechnology, Gauhati University,	Institutional Biotech Hub, Gauhati University	14th February 2015
	key note lecture on Enzymatic Biofuel Cell for Micro Scale Electronic Devices	IITG-Kyoto Institute of Technology (KIT) Joint Symposium on Biobased Materials,	IIT Guwahati	20January, 2015
	Biosensors for clinical applications	Symposium on Recent Advances in Biotechnological Research in North East India: Challenges and Prospects organized by Dept. of Molecular Biology and Biotechnology	Tezpur University	November 27-29, 2014
	Biotechnology: Recent advances and Future Prospects	Delivered invited lecture at University of Science and Technology, Meghalaya	University of Science and Technology, Meghalaya	on on 23rd August 2014 in
Anil M Limaye	Direct inhibition of matrix metalloproteinase-2 (MMP-2) by the green tea polyphenol Epigallocatechin-3-gallate (EGCG): mechanistic insights from biochemical and <i>in-silico</i> studies	Recent Advances in Cancer Biology and Therapeutics-2014	Guwahati	5 <sup>th</sup> Dec, 2014
Anil M Limaye	Matrix metalloproteinases and tumor progression	QIP	Guwahati	4 <sup>th</sup> Feb, 2015
Dr Rakhi Chaturvedi	General applications of Plant tissue culture	Amity University	Lucknow	March 3, 2015
Dr. Bithiah Grace Jaganathan	Stem Cells in Biomedical Engineering	QIP- Short Term Course on "Advances in Biomedical Engineering 2015"	Indian Institute of Technology Guwahati	Feb 25- March 1, 2015

#### 16. Visitors From Other Institutes / Universities / Organisations / Invited Lectures

Sl. No.	NAME OF FACULTY	NAME OF LECTURE	NAME OF INSTITUTE /ORGANIZATION	PLACE	DATE
1	Dr. Junpei Takano	Boron Transport in plants	Laboratory of molecular biology, Research Faculty of Agriculture, Graduate School of agriculture, Hokkaido University	Sapporo, Japan	05/11/14
2	Dr. Manab Deka.	Some latest news on bacteria and viruses	Department of Applied Sciences, Gauhati University	Guwahati	11/11/14
3	Prof. M. R. N. Murthy,	Twists and Turns of Protein Structures	Molecular biophysics unit, IISC, Bangalore	Bangalore	14/11/14
4	Mr. Pedro Bule	Cellulosomes as a source of novel carbohydrate active molecules	Faculty of Veterinary Medicine, University of Lisbon, Portugal	Portugal	25/11/14
5	Mr. Amitava Chakraborty	Demystifying Patenting in India: Portfolio and	Indian Patent Counsel and Consultant for	USA	12/12/14



		Strategies (AC)	Applied Research Works Inc., USA		
6	Dr. Sudhakaran Prabhakaran,	Complex Regulation of Cellular Proteome	Postdoctoral Research Fellow, Department of Systems Biology, Harvard Medical School, Boston, MA, USA	Boston, MA, USA	08/01/15
7	Prof. Amitava Chattopadhyay	I. Interaction of Membrane Cholesterol with G-Protein- Coupled receptors: Novel Insights In Health and Disease II. Organization and Dynamics of Membranes and Proteins using the Wavelength- Selective Fluorescence Approach	Center for Cellular and Molecular Biology (CCMB), Hyderabad, India	Hyderabad, India	16/01/15
8	Prof. Bharat B Aggarwal	Targeting Inflammatory Pathways for the Prevention of Chronic Diseases “Naturally” by Nutraceuticals Derived from Spices and from Traditional Indian and Chinese Medicine	Cytokine Research Laboratory, Department of Experimental Therapeutics, The University of Texas M.D. Anderson Cancer Center, Houston, Texas, USA	Houston, Texas, USA	05/12/2014
9	Prof. Farid Badria	One Molecule and several Therapeutic Targets	Head of Pharmacognosy Department and Drug Discovery Unit, Mansoura University, Egypt	Egypt	05/12/2014
10	Prof. Anupam Chatterjee	Precocious anaphase and the expression of Securin and p53 genes as candidate biomarkers for the early detection in areca-nut induced carcinogenesis	Department of Biotechnology & Bioinformatics, North Eastern Hill University	Shillong, Meghalaya	05/12/2014
11	Dr. B.G. Unni	Chronic Obstructive Pulmonary Disease- a probable risk factor for lung cancer	Biotechnology Division, CSIR-North East Institute of Science & Technology, Jorhat, Assam	Jorhat, Assam	05/12/2014
12	Dr. Ruby John Anto	Curcumin: A potential candidate to be evaluated as a chemosensitizer in the cervical cancer and breast cancer chemotherapy	Rajiv Gandhi Centre for Biotechnology, Kerala	Kerala	05/12/2014
13	Dr. Pranjal Deka	Molecular Biology of cancer Gallbladder	Consultant GI & HPB Surgery, GNRC Hospital, Guwahati	Guwahati	05/12/2014
14	Dr. Asha S. Nair	Development of novel sensitizers based on NIR dyes	Rajiv Gandhi Centre for Biotechnology, Kerala	Kerala	05/12/2014
15	Dr. Raghunath Chatterjee	A new function of CpG methylation	Indian Statistical Institute	Kolkata	05/12/2014

16	Dr. Yogeshwer Shukla	Cancer: Causes and Prevention	Proteomics Laboratory, Indian Institute of Toxicology Research, Lucknow	Lucknow	04/02/2015
17	Dr. Munindra Baruah	HPV and Cancer	Head and neck cancer, NECHRI	Guwahati	05/02/2015
18	Mr. Sumantho Basu	I. Basics of Flow cytometry II. Clinical applications of FACS and Data analysis	BD Biosciences	Kolkata	05/02/2015
19	Dr. Madhumita Roy-Senior Scientist	Arsenic and Cancer	Chittaranjan National Cancer Institute, Kolkatta	Kolkata	06/02/2015
20	Dr. Alok C. Bharti	Human Papillomavirus and Cervical Cancer: Molecular Biology at the fulcrum of Disease Diagnostics and Emerging Therapeutics	Institute of Cytology & Preventive Oncology, ICMR, Noida	Noida	06/02/2015
21	Dr. Rupinder Singh	PCR and its applications in Cancer research	Bio-Rad Laboratories	New Delhi	06/02/2015
22	Dr. Rajesh Saha,	Western Blot and its applications in Cancer research	Bio-Rad Laboratories	Kolkata	06/02/2015
23	Mr. Hrudaya S. Chaporkar	I. Working principle of Spectrophotometer II. Introduction to the latest technologies of cancer research	ThermoScientific	Kolkata	07/02/2015
24	Prof. Anupam Chatterjee	Techniques and approaches used in raw betel-nut induced carcinogenesis	Department of Biotechnology & Bioinformatics, North Eastern Hill University	Shillong, Meghalaya	08/02/2015
25	Dr. Pawan Sharma	DBT Programmes in North Eastern Region (DBT-in-NER)	Healthcare, NER-BPMC (DBT), New Delhi	New Delhi	08/02/2015
26	Dr. Jibon Kotoky	Drug, its Development from Natural Sources : An Overview	Biological & Chemical Sciences, Division of Life Sciences & Chairman CIF, Institute of Advanced Study in Science & Technology (IASST), Guwahati	Guwahati	08/02/2015
27.	Prof. Punit Kaur	Structural Insights into the mechanism of action of proteins secreted during late lactation	Department of Biophysics, AIIMS, New Delhi	New Delhi	20/02/2015
28.	Professor P. Balaram	Mass spectrometry and Next Generation Sequencing in the Analysis of Natural Peptide Libraries: The Case of Cone Snail Venom	Indian Institute of Science Bangalore	Bangalore	Departmental Colloquium October 28, 2014
		Chemistry at the Fringes of Biology: Protein Sequences and Function			Biotalk October 28, 2014
29.	Dr. Ch. Mohan Rao		CCMB	Hyderabad	15/09/14

**17. 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. Kannan Pakshirajan	DSIR Workshop on Industrial Research in Development of Biopharmaceuticals	Department of Scientific and Industrial Research, Government of India	3 <sup>rd</sup> March 2015	National	30
2.	As a Co-coordinator Coordinator: Dr Nitin Chaudhary and Dr Vibin Ramakrishnan	Two days workshop on "PEPTIDE DRUGS: MODELING TO PRACTICE"	TEQIP, MHRD	Guwahati 7-8 <sup>th</sup> Nov 2014.	National	34
3.	L Rangan	Flow Data Analysis Workshop	Registration Amount and BioRad	24-25 Jan 2015	National	50
4.	Rajeev Kumar and L Rangan and	Basics and Clinical of Flow Cytometry Course	DBT- NE	10-11 Nov 2014	National	39
5.	Dr Piruthivi Sukumar	QIP on Advances in Biomedical Engineering	CET IITG/AICTE	25 <sup>th</sup> Feb to 1 <sup>st</sup> Mar 2015	National	20
6.	Biplab Bose, Convener	Short-term Training Course on "Advanced Techniques in Cell and Molecular Biology"	DBT	June 2014	National	40
7.	Dr. Biman B. Mandal	Advances in Biomedical Engineering	AICTE	Feb 25 <sup>th</sup> till March 01, 2015	National	20
8.	Dr. Nitin Chaudhary Dr. Vibin Ramakrishnan Dr. Sachin Kumar	TE-QIP workshop on Peptide Drugs: Modeling to Practice	CET, IIT Guwahati	Nov 07 – Nov 08, 2014	National	33
9.	Prof. Venkata Dasu Veeranki (Organizing Chairman), Dr. Ajaikumar B. Kunnumakkara (Organizing Secretary), Prof. Rajaram Swaminathan (Chairman- Scientific Committee)	National Conference on "Recent Advances in Cancer Biology and Therapeutics – 2014 (RACBT- 2014)"	Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati, Guwahati	5 <sup>th</sup> December, 2014	National	300
10.	Dr. Ajaikumar B. Kunnumakkara (Co-ordinator), Dr. Sachin Kumar ( Co-Coordinator)	Short term Course on "Theoretical and Practical Aspects of Cancer Research"	Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati, Guwahati	4 <sup>th</sup> – 8 <sup>th</sup> February, 2015	National	33
12.	Professor Pranab Goswami	Frontier Energy Research with	DST, DBT, CSIR, Reliance	20-21 <sup>st</sup> March	Open	84 participants

		Industry Academia partnership	Industries Ltd., Carl Zeiss India, Neofam Instrument, Bani Mandir.	2015		and 09 experts
13.	Dr. Utpal Bora, Secretary Organizing Committee, [organized in collaboration with Institute of Advanced Study in Science and Technology, (IASST)]	International Conference on Disease Biology and Therapeutics	DST	3 <sup>rd</sup> -5 <sup>th</sup> December, 2014	International	

#### 14. Patents:

**No. of Patents Applied with details: 05**

**No. of Patents Granted with details: 00**

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
1	Dr. Vibin Ramakrishnan Ms. Sajitha S. Dr. Nitin Chaudhary Mr. Gaurav Pandey	Crystalline Di-Histidine Nanostructures	March 09, 2015 Applied	243/KOL/2015	
2	Dr. Vibin Ramakrishnan Mr. Prakash Kishore Hazam Dr. Nitin Chaudhary Dr. Vishal Trivedi Mr. Gaurav Jerath	Antimicrobial Peptides	March 26, 2015 Applied	333/KOL/2015	
3	Dr. Nitin Chaudhary Ms. Karabi Saikia Ms. Durga Sravani Yalavarthi Dr. Vibin Ramakrishnan	Antimicrobial Short Peptides	March 30, 2015 Applied	353/KOL/2015	
4	Pranab Goswami, Ankana Kakoti, Mohd. Farhan Siddiqui	Paper based microfluidic analytical device with prefabricated customized test zone	30.12.2014	1365/KOL/2014.	
5	Pranab Goswami, Ankana Kakoti, Mohd. Farhan Siddiqui	Leak proof paper based analytical microfluidic device and process for its preparation.	03.11.2014	1126/KOL/2014.	

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

- Dr. B. Anand was chosen for NASI-Young Scientist Platinum Jubilee Award for the Year 2014 .
- Professor V. K. Dubey received Prof. Umakant Sinha Memorial Award of the Indian Science Congress Association.
- Professor V. K. Dubey received "Dr. P.N. Raju Oration Award" of Indian Council of Medical Research (ICMR)
- Professor V. K. Dubey elected as FBRS (Fellow, Biotech Research Society) of India in recognition of outstanding research contributions to Medical Biotechnology (2014).
- Professor V. K. Dubey elected as FABP (Fellow, Association of Biotechnology and Pharmacy ) in recognition of outstanding research contributions to Medical Biotechnology (2014).
- Professor L Rangan received Dr JN Baruah Memorial Award in area of Biological Sciences, Assam Science Society, 2014

- g) Dr. L.Pandey received Innovation in Science Pursuit for Inspired Research (INSPIRE) Faculty Award 2014 by Department of Science & Technology in Engineering and Technology Discipline.
- h) Professor Pranab Goswami has been selected as editor of *Biocatalysis and Agricultural Biotechnology (BAB)* (Elsevier, ISSN: 1878-8181), Official journal of the International Society of Biocatalysis and Agricultural Biotechnology (ISBAB) since January 2015.  
[ <http://www.journals.elsevier.com/biocatalysis-and-agricultural-biotechnology/editorial-board/>]
- i) Professor Pranab Goswami is the member of the selection committee (12.12.2014) for the post of Technical Superintendent, IIT Guwahati.
- j) Professor Pranab Goswami is the member of the selection committee (18.11.2014) for the post of Institute Post Doctoral Fellow.
- k) Professor Pranab Goswami is the expert member of the selection committee (28.10.2014) for the selection of faculty members in the Department of Food Processing Technology in Central Institute of Technology (CIT), Kokrajhar.
- l) Professor Pranab Goswami is the member of internal screening committee meeting (23.06.2014) for scrutinizing applications of the Academic Staff for upgradation under MFCS at IASST, Guwahati.
- m) Professor Pranab Goswami is the member of the expert committee constituted for 3 years (2014-2016) by Department of Biotechnology, Govt. of India for evaluating projects between India and another country in the area of Biotechnology.
- n) Professor Pranab Goswami is the member of the selection committee (14.02.2014) for the post of Assistant Librarian, IIT Guwahati.
- o) Dr. Utpal Bora has been awarded UXCEL award by DBT, Govt. of India in the form of a project entitled “Exploration and characterization of seri- bioresources of North East India for potential textile and non-textile applications” for 3years (2014-2017).

## 16. Students' Achievements:

1. **Mr. Siddharth Nimkar**, a PhD student under the tutelage of Dr. B. Anand won “Best Poster Award” in the international conference on “Proteomics from Discovery to Function” at IIT Bombay
2. **Ashutosh Gupta**, PhD student under Prof. Arun Goyal and Dr. D. Das received 2nd best poster award for his work on “Improved bioethanol production from mixed pretreated leafy biomass of bamboo (*Bambusadendrocalamus*) involving saccharification by recombinant enzymes from *Clostridium thermocellum* at Frontier Energy Research with Industry Academia Partnership (FERIAP, 2015), a workshop organized during March 20-21, 2015 at Center for Energy, IIT Guwahati, Assam, India.
3. **Ashutosh Gupta**, PhD student under Prof. Arun Goyal and Dr D. Das received best poster award and cash prize Rs 5000/- for his work on “Bioethanol production from Copra meal involving recombinant  $\beta$ -(1 $\rightarrow$ 4)-Mannanase from *Clostridium thermocellum* presented at 29<sup>th</sup> ACCCTI Carbohydrate Conference (CARBO-XXIX) on ChemBio Innovations for Bioproducts, December 29-31, 2014, Center of Innovative and Applied Bioprocessing (A National Institute under DBT, Govt. of India, Mohali, Punjab, India.
4. **Rwivoo Baruah**, a PhD student under Prof. Arun Goyal successfully completed joint international collaborative research project with University of Helsinki, Finland under Center for International Mobility (CIMO) fellowship for doctoral programme during Sept. 28, 2014 to March 28, 2015
5. **Ms Anuma Singh**, doctoral student under supervision of Dr L Rangan received **Best Poster Award** in the Session “Validation of Traditional Knowledge on Herbal Medicines” for her poster titled “Characterization of bioactive karanjin from seeds of Karanj” during International Conference on "Medicinal Plants and Herbal Drugs for Human” Chennai, from Jan 29-31, 2015
6. **Mr. Satish Cingadi**, M.Tech student of our department who had pursued his M.Tech project thesis at our lab was awarded 'Best Poster Presentation' in 'International Conference on Emerging Trends in Biotechnology (ICETB-2014)' organized by The Biotech Research Society India at School of Environmental Sciences, JNU, New Delhi on Nov 6-9, 2014. Mr. Satish secured this award for his thesis work entitled "Statistical optimization of cassava fibrous waste hydrolysis by response surface methodology and use of hydrolysate based media for the production of optically pure D-lactic acid
7. **Mr. Bedabrata Saha** was awarded first prize in poster presentation on the title "Constitutive overexpression of Arabidopsis LEA protein, AtLEA4-1 confers drought tolerance in transgenic mustard" in Vth workshop under the DBT-AAU Center "Biotechnology Research in Northeast India: Present & Future held at Assam Agricultural University, Jorhat during 18-21 September 2014
8. **Best Poster award to Ananya Barman** for the poster titled “Reactive oxygen species and cell signaling in *Neurospora crassa*”, presented at the International Conference on Disease Biology and Therapeutics (ICDBT-2014), Institute of Advanced study in Science and Technology, Guwahati, India, 3-5 December 2014.

9. **Mr. Manishekhar Kumar** (PhD student, 2012 batch) selected for prestigious **Fulbright Nehru Doctoral Research Fellowship 2014**. Manishekhar will be visiting USA for 09 months (starting July 2015) to pursue research work at Biomedical Engineering Department, Tufts University to work with Prof. David L. Kaplan on “Bioartificial Pancreas”.

**10. Best Poster Award to Mr. Jadi Praveen Kumar** and Mr. Manishehar Kumar in Advances in Polymer Science & Technology (APST-2015) National conference, IASST, Guwahati, India, March 13, 2015.

**11. Best Poster Award to Mr. Manishehar Kumar** in Advances in Polymer Science & Technology (APST-2015) National conference, IASST, Guwahati, India, March 13, 2015.

**12. Debika Datta**, Best Poster Prize for the poster titled “Investigations into the role of amphiphilicity in  $A\beta_{16-22}$  self-assembly” presented at 6<sup>th</sup> Annual Meeting of Proteomics Society India PS(I) and International Conference held at IIT Bombay during 7-9 December, 2014

**13. Mr. Y. Disco Singh**, research scholar of Centre for Energy and Neitho-o, M.Tech student of Department of Bioscience and Bioengineering working with Dr Utpal Bora won the best poster award on "Indigenous plants used by local populace in North-East India as house-hold remedies" at International conference on Disease Biology & Therapeutics (ICDBT 2014) organized by IASST, Guwahati from 3-5 December 2014.

**14. Mrs. Shahla Kianamiry**, Iranian visiting PhD Student from Department of Nanobiotechnology, Tarbiat Modares University (TMU) working with Dr. Utpal Bora, Department of Bioscience and Bioengineering won best poster award on “Optimizing of activation curcumin for conjugation with nanocarriers as an anticancer nanomedicine” at International conference on Disease Biology & Therapeutics (ICDBT 2014) organized by IASST, Guwahati from 3-5 December 2014.)

**15. Manoj Gadewar**, research scholar of the Department of Bioscience and Bioengineering working with Dr. Utpal Bora won second best poster award on “Novel herbal drug delivery system” at 4th Biennial International Conference on New Developments in Drug Discovery from Natural Products and Traditional Medicines held at National Institute of Pharmaceutical Education and Research (NIPER), Mohali, Punjab, India.

**16. Mr. Suradip Das**, research scholar of Department of Bioscience and Bioengineering working with Dr Utpal Bora was awarded DST International Travel Support for presenting a paper entitled “Nanotechnology in Neuroscience” at the 16<sup>th</sup> International Spinal Research Trust Meeting during 3-6<sup>th</sup> September, 2014 at London, UK.

**17. Mr. Arghya Sett**, Ph.D student under supervision of Dr. Utpal Bora, Dept. of Biosciences and Bioengineering was awarded International Travel Support by Department of Biotechnology (DBT) for presenting a poster entitled “Aptamers in breast cancer diagnostics” at the 16th EMBL PhD symposium held in EMBL, Heidelberg, Germany during 23-25th October, 2014.

**18. Best paper award** under supervision of Prof. Rakhi Chaturvedi to "Extraction and Identification of Biologically Active Compounds from In vivo and In vitro Cultured *Tinospora cordifolia* (willd.) Miens ex Hook .F. Thoms." at Asian Plant Science Conference, Nepal 2014

#### 17. Any Other (Special Mention)

- a) Aadi Moolam Ramesh Completed his PhD in the year 2014 under supervision of Prof. L. Rangan
- b) Supriyo Basak Completed his PhD in the year 2014 under supervision of Prof. L. Rangan
- c) Tushar Completed his PhD in the year 2014 under supervision of Prof. L. Rangan
- d) Gauri Deb completed her PhD in the year 2014 and will be awarded her degree in 2015 under supervision of Dr Anil Limaye
- e) Dr. Utpal Bora Founded Mugagen Laboratories Pvt Ltd, the first biotech start-up company of North-East India presently incubated at IITG-Technology Incubation Centre, IIT Guwahati.
- f) Dr. Utpal Bora was awarded the highly competitive Biotechnology Ignition Grant (BIG) project entitled “Exploring Muga silk fibre as a promising suture material” from BIRAC, DBT, Govt. of India (mentor institute IKP, Hyderabad) on July, 2014 for Rs. 49.92 Lakhs
- g) Dr. Utpal Bora was awarded a project entitled “Implantable Scaffolds for Obstetric Fistula” under Social Innovation Programme for Products Affordable & Relevant to Societal Health (SPARSH) scheme of BIRAC, DBT, Govt of India amounting to Rs 48 Lakhs on Decemeber, 2014
- h) Himangshu Sonowal completed his PhD in the year 2015 under supervision of Dr. Bithiah Grace Jaganathan
- i) Prof Arun Goyal was invited as Visiting Professor
  - Dec 2014 - Dec 2014 Visiting Professor, Department of Food and Environmental Science, University of Helsinki, Finland.
  - Jun 2014 - Jul 2014 Visiting Professor, Department of Animal Production, Faculty of Veterinary Medicine (FMV), Technical University of Lisbon (UTL), Lisbon, Portugal.

- Jun 2014 - Jun 2014 Visiting Professor, Department of Food and Environmental Science, University of Helsinki, Finland
  - j) Prof Arun Goyal was Invited as one of the Panel of judges for Best Poster Awards at International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention, November 6-9, 2014, Jawaharlal Nehru University, New Delhi, India
  - k) Prof Arun Goyal was Invited as the Judge for Best oral presentation at International Conference on Biotechnology and Bioengineering (ICBB-2014), Oct 28-29, 2014, BITS Pilani, Dubai Campus, Dubai, UAE.
  - l) Prof Arun Goyal
- 2015 Invited Reviewer, Environmental Progress and Sustainable Energy.
  - 2015 Invited Reviewer, International Journal of Biological Macromolecules.
  - 2014 Invited Reviewer, Plos One
  - 2014 Invited Reviewer, Biotechnology Progress
  - 2014 Invited Reviewer, Journal of Food Science and Technology.

Prof Arun Goyal was invited as Member, Reviewing Committee, Technology Incubation Center (TIC), IIT Guwahati (June 2012 -contd.)

PhD. Completed with Prof. Arun Goyal

S. No.	Name Department/Center	Thesis Title	Joining - Completion/ Present Status
1.	Rishikesh Shukla (MSc Microbiology) Jiwaji University, Gwalior	Dextranucrase and dextran with anticancer properties from probiotic <i>Pediococcus pentosaceus</i> CRAG3 isolated from fermented cucumber	Jul 2008- May 2014 RA –Univ. of Delhi South Campus, Delhi
2.	Saprativ P. Das (MTech Biotechnology) Anna University, Chennai	Lignocellulosic ethanol production from wild grass and water hyacinth involving recombinant <i>Clostridium thermocellum</i> cellulase and hemicellulase.	Jul 2009 - Apr 2014 Dr. D. Das, Biotech as Co-supervisor Assistant Professor, NIT Warangal
3.	Deeplina Das (MTech Biotechnology) WBUT, Kolkata	Bacteriocin, antioxidant and novel glucan from probiotic <i>Lactobacillus plantarum</i> DM5 isolated from Marcha of Sikkim.	Jul 2009 -Apr 2014 Assistant Professor, NIT Agartala
4.	Arabinda Ghosh (MSc Biotechnology) NEHU, Shillong	Molecular cloning, expression, purification and characterization of $\beta$ -mannanase of family 26 Glycoside Hydrolase and associated family 35 carbohydrate binding module from <i>Clostridium thermocellum</i> and its application in manno-oligosaccharides production	Jul 2009 -Feb 2015 Assistant Professor, Gauhati University
5.	Damini Kothari MSc Botany, Gauhati University	Synthesis, purification, characterization and prebiotic applications of dextran and oligo-saccharides from <i>Leuconostoc mesenteroides</i> NRRL B-1426 dextranucrase	Jul 2010 -Mar 2015

Prof. Arun Goyal, examined PhD Thesis

1.	Aakanksha Vatsal	Production, purification and characterization of dehalogenase from <i>Yarrowaliplytica</i>	Institute of Bioinformatics and Biotechnology University of Pune, Pune, Maharashtra	Aug, 2014
2.	Priyanka R. Sharma	Functionalized celluloses and their nanoparticles: Synthesis properties and applications	Academy of Council of Scientific and Industrial Research (ACSIR), NCL Pune, Maharashtra	Aug, 2014
3.	A. Shivananda	Phytochemical, Biological and Pharmacological studies of some Medicinal plant extracts	Department of Biotechnology JawaharLal Nehru Technological University Anantapur, AP	Sep, 2014
4.	R.E.M. Muhamed (MSc Thesis)	Biochemical and Molecular aspects of Cypermethrin pesticide on albino	Department of Chemistry, Faculty of science	Nov, 2014

		rats.	Cairo University, Giza, Egypt	
5.	S. Suneetha	Basic studies on marine microbial strain isolation and bioprocess development for the microbial production of L-glutaminase	Faculty of Biotechnology, Jawaharlal Nehru Technological University Hyderabad Kukatpally, Hyderabad	Dec, 2014

## 18. Faculty Members

S. No.	Faculty Member	Designation	Areas of Interest	Date of joining
1.	Anand B., Ph.D.	Assistant Professor	Structural Biology, Bioinformatics & Computational Biology, RNA Biology, Molecular Evolution	
2.	Bora U., Ph. D.	Associate Professor	Biomaterials, Nanotechnology, Drug Delivery and Tissue Engineering	
3.	Bose B., Ph. D.	Associate Professor	Cell Signaling, Computational Biology, Recombinant Proteins	
4.	Chaturvedi R., Ph. D.	Professor	Plant Cell, Tissue & Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and Characterization of Plant Secondary Metabolites	
5.	Chaudhary N., Ph. D.	Assistant Professor	Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions, Curvature inducing proteins	
6.	Das D., Ph. D.	Associate Professor	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel	
7.	Dasu V. V., Ph. D.	Professor	Bioprocess Development (upstream to downstream), Metabolic Engineering, Bioenergy	
8.	Dubey V. K., Ph. D.	Professor	Protein Biochemistry; Parasite Biochemistry	
9.	Ghosh S. S., Ph. D.	Professor	Gene Therapy, Expression Cloning (Mammalian Systems), Nanobiotechnology	
10.	Goswami P., Ph. D.	Professor	Biocatalysis, Biosensor, Enzymatic Biofuel cell, and Biotransformation	
11.	Goyal A., Ph. D.	Professor	Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes and other industrial microbial enzymes	
12.	Jaganathan B.G., Ph. D.	Assistant Professor	Stem Cells, Cancer and cell therapy	
13.	Kanaujia S. P., Ph.D.	Assistant Professor	Structural and Computational Biology	
14.	Kumar M., Ph.D.	Assistant Professor	Molecular interaction of host-pathogen-vector of infectious diseases, Vector borne diseases of Zoonotic importance.	
15.	Kumar S., Ph.D.	Assistant Professor	Identification of molecular determinants of avian paramyxovirus virulence, Reverse genetics study of avian paramyxoviruses: Newcastle disease virus as a model, Vaccine development against avian paramyxoviruses using reverse genetics system, Viral vector study- Avian paramyxoviruses and adenoviruses.	
16.	Kunnumakkara A.B., Ph.D.	Assistant 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	
17.	Limaye A. M., Ph. D.	Assistant Professor	Molecular endocrinology, Cancer biology, Gene expression and regulation in Eukaryotic and Prokaryotic systems	
18.	Maiti S. K., Ph.D	Assistant Professor	Biochemical Engg, Biofuel, Bioprocess modeling	
19.	Mandal B. B., Ph.D.	Assistant Professor	Cell based tissue engineering, Biomaterials, Stem cells, Drug delivery systems	
20.	Pakshirajan K., Ph. D.	Associate Professor	(a) Environmental Biotechnology: biological removal of organic and inorganic pollutants from water and wastewaters (b) Biotechnological Products and Process Engineering: production, characterization and properties, process design, kinetics and optimization (c) Biohydrometallurgy and (d) Biofuels	
21.	Pandey L., Ph.D	Assistant Professor	Surface and interfacial science, Protein's adsorption and aggregation, Environmental Biotechnology	



22.	Patra S., Ph. D.	Associate Professor	Enzymes - applications in pharma and food industry	
23.	Ramakrishnan V., Ph.D.	Assistant Professor	Computational Biology, Bioinformatics, Biophysics, Bio-Organic Chemistry, Bionanotechnology	
24.	Ramesh A., Ph. D.	Associate Professor	Nanobiotechnology, Biological Activity of Synthetic Amphiphiles and Metal Complex, Probiotics and Antimicrobial Peptides	
25.	Rangan L., Ph. D.	Professor	Molecular systematics, Biofuel, IPR	
26.	Sahoo L., Ph. D.	Professor	Genetic engineering and functional genomics of plants	
27.	Saini G. K., Ph. D.	Associate Professor	Fungal Biotechnology, Biological Control, DNA fingerprinting and Transformation studies, Studies on extracellular enzymes and toxic metabolite production, Development of a potent biopesticide	
28.	Sivaprakasam S., Ph.D.	Assistant Professor	Bioprocess Analytical Technology (BioPAT), Biocalorimetry, Bioprocess Monitoring and Control Environmental Bioprocess Systems	
29.	Sukumar P., Ph.D.	Assistant Professor	Smooth muscle and endothelial cell function, Cardiovascular diseases, Diabetes, Obesity	
30.	Swaminathan R., Ph. D.	Professor	Protein Structure, Function and Dynamics; Fluorescence Spectroscopy	
31.	Tamuli R., Ph. D.	Associate Professor	Calcium signaling, DNA repair	
32.	Trivedi V., Ph. D.	Associate Professor	Intracellular Signaling in <i>Plasmodium falciparum</i> .	

#### LIST OF Office Staff Members

S. No.	Staff Member	Designation
1.	Barah Niranjana	Junior Technical Superintendent
2.	Barman Dipankar, Diploma in Electronics & Telecommunication Engg.	Junior Technical Superintendent
3.	Baruah Rashmi , M.Sc. Botany, BEd	Junior Technical Superintendent
4.	Islam Nurul, M.Sc. Agril. Biotech.	Technical Superintendent
5.	Swargari Prarthana, M.Sc. Biochemistry	Technical Superintendent
6.	Nath Chandan Kumar, M.Sc. Computer Science	Junior Technical Superintendent
7.	Yadav, P. Raghuvver, M.Sc. Biotechnology	Junior Technical Superintendent
8.	Gogoi, Bidyut Kr.	Junior Assistant
9.	Bhuyan, Pankaj	Junior Attendant
10.	Sarma, Dipangkar	Junior Assistant