INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

DEPARTMENT OF BIOTECHNOLOGY

ANNUAL REPORT

April 2010 - March 2011

1. INTRODUCTION

The Department of Biotechnology, established in November 2002 at the Indian Institute of Technology Guwahati (IITG), has both Undergraduate (B. Tech.) and Postgraduate (M. Tech. and Ph. D.) academic programmes. This Department is unique in North-Eastern India, imparting quality education and providing an excellent research environment through its academic programmes. As of now, the Department of Biotechnology has 22 faculty members from diverse streams and specializations, five well-trained scientific staff members, and two administrative staff members.

Teaching and research are the two major activities of the Department of Biotechnology. Among the 41 graduating students from the Department of Biotechnology on the day of the 12th convocation (26.05.2010), 30 were B. Tech., seven were M. Tech., and four were Ph. D. students.

Research in the Department of Biotechnology is very diverse and covers almost all important areas in the field of Biotechnology. Faculty members from this Department are also actively involved in Centre for Energy, Centre for the Environment, and Centre for Nanotechnology, thereby participating in multidisciplinary research activities. Research activities during this period in the Department of Biotechnology resulted in **160 publications**, of which **77 were in international journals, 15 were in national journals, and 68 were in various conferences** (both national and international).

New projects of worth Rs. 725.94 lakhs have been sanctioned to various Principle Investigators in the Department. Besides, a number of projects of about **Rs. 2555.442 lakhs are ongoing**, and a few projects of **worth Rs. 199.9844 lakhs have been completed**. Moreover, two faculty members from this Department are also working on consultancy projects. Many new equipments, purchased from the Departmental fund as wells from various projects, are available in the Department.

Five faculty members received various prestigious awards, and a number of students received best poster awards in various conferences as well as received fellowships for research in aboard. In addition, a number of faculty members delivered invited talks, a book chapter was published and some exchange programs for higher research were completed during this period. A number of distinguish scientists, both from India and aboard, delivered lectures in addition to the lectures delivered in one short term course/workshop organized by the Department of Biotechnology.

The detail activities of the Department of the Biotechnology are given in below.

2. ACADEMIC ACTIVITIES:

Teaching (B. Tech. and M. Tech.) and Research (Ph. D. and Project mode).

3. STUDENT INTAKE:

43 in B. Tech., 29 in M. Tech, and 23 in Ph. D.

4. FACULTY STRENGTH:

22 (at present).

5. MAJOR EQUIPMENT AND FACILITIES

Atomic Force Microscope - Contact Mode, Autotensiometer, Bioreactor, Trinocular Phase Contrast Microscope with Fluorescence attachment, Trinocular Stereo Zoom Microscope with Fibre Optic Light, DuoFlow, FACS Calibur Flowcytometer Analyser, Compact Spectrofluorometer, FPLC System, Digital Imaging System, Gradient PCR Thermal Cycler, HPLC System, Freeze Dryer, Manual Rotary Microtome, Multimode Microplate Reader, Real-Time PCR System, Ultracentrifuge

6. RESEARCH AND DEVELOPMENT ACTIVITIES

The major thrust of the department includes biochemical engineering, plant biotechnology, nanobiotechnology, gene therapy, computational biology and proteomics. The department has initiated efforts to establish advanced research laboratories in all the thrust areas. Apart from fundamental research, the goals of the department are also targeted to meet the demands of the biotechnology based industries.

7. RESEARCH PROJECTS (In tabular format as given below)

New Sponsored Projects

S No.	Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in lakh)	Co-Investigator	Duration
1.	Dr. Aiyagari Ramesh	Evaluation of probiotic attributes of lactic acid bacteria based on bacteriocinogenic activity and *in vitro* adhesion properties	Council of Scientific and Industrial Research (CSIR)	11.30	Dr. Biplab Bose	3 years
2.	Prof. Arun Goyal	Bioinformatics Infrastructure Facility	Department of Bio-technology (DBT) New Delhi	20.0	(Dr. V. Dubey as Deputy Coordinator)	perpetual
3.	Dr. Bithiah Grace Jaganathan	Study of Apoptotic Signalling Pathways in Mesenchymal Stem Cells during Normal and Differentiated State	DBT	91.05	Dr. Zhumur Ghosh Dr. Rajesh Singh (IIAR) Dr. Chandra-mani Pathak (IIAR)	3 years
4.	Dr. Gurvinder Kaur Saini (PI IITG)	Isolation, characterization and identifica-tion of natural pigments of food and industrial values from filament-ous fungi	DBT	56.76	Suresh (PI), North east Institute), N.C. Talukdar (PI) IBSD	3 Years
5.	Dr. Lingaraj Sahoo	Development of Pod Borer Resistant Transgenic Pigeonpea and Chickpea	ICAR, New Delhi	795.30 58.00 (For IITG for 3 years)	-	5 Years
6.	Prof. R. Swaminathan	Protein aggregation: early molecular events, mechanisms and inhibition	DST	53	none	3 years
		Single molecule fluorescence investigations on the mechanism of lysozyme aggregation and RNA helicase activity	DBT	94.75 (60 for IITG)	Dr. B. Anand, IITG and Dr. S. Maiti (TIFR, Mumbai)	3 years

7.	Dr. Ranjan Tamuli (PI, IITG) and Dr. Durgadas P. Kasbekar (PI, CCMB)	Studies on the cellular roles of calcium signaling proteins in *Neurospora crassa*	DBT, New Delhi	72.88 (Total), 50.70 (for IITG)	Dr. Utpal Bora (IITG) and Dr. Ch. Mohan Rao (CCMB)	3 years
8.	Dr. Vikash Kumar Dubey	Studies on Peptide-conjugated nanoparticles mediated antileishmanial drug delivery to macrophages	DBT	31.83	Dr. S. Patra	3years
		Betraying the parasite's redox system: Studies on spermidine synthase of *Leishmania donovani*.	DBT	82.18	V. Trivedi, BT; P.K.Iyer, Chem; S. Sundar, IITD; MV Jagannadham BHU	3years
		Deciphering the molecular mechanism underlying the activity of antitumor agents as antileishmanial agents and their potential for therapy	DBT	40.68	Nil	3years
		An integrated compu-tational and biochemical approach to target Ornithione decarboxylase, a key enzyme involved in synthesis of trypanothione for antileishmanial drug discovery"	ICMR	40.00 (14.53 Lakhs Initial sanction for one year)	Dr. V. Trivedi, BT	3years
9.	Dr.Vishal Trivedi	Molecular Modeling, Design and Synthesis of Macrophage Phagosome-Lysosome Fusion Activators in Development of anti-malarials	BRNS	16.86	None	3 yrs
		Biochemical and Functional Character-ization of RIO kinase (s) from *Plasmodium falciparum* as a Potential Drug Target	DBT	31.48	Dr. V.K. Dubey	3 yrs
		Winged Helix domain-oligonucleotide recognition as an axis to develop PfRIO-2 specific inhibitor: implication in anti-malarial drug development	DBT	82.10	Dr. Sanjukta Patra (IITG) Dr. Chandra lata Bal (PI at BIT Ranchi	3 yrs
10.	Dr. Utpal Bora	Ganga river basin management plan: Thematic group-Ecology and Biodiversity. (IIT Consortia National Project)	Ministry of Environm ent and Forests (MOEF)	1600.00 (Total)	Dr. Ranjan Tamuli & Dr. Mrinal Kanti Dutta	1.5 years
		Silk Based scaffolds for Neural Tissue Engineering.	Departme nt of Biotech-nology	58.44	Dr. Ranjan Tamuli	3 years
		Establishment of Institutional Biotech Hubs (IBThubs) by DBT under special programme for North Eastern States of India.	Departme nt of Biotechno logy (DBT)	27.00	Prof.Chanda n Mahanta & Dr.Ranjan Tamuli	3 years

b) Ongoing Sponsored Projects

S. No.	Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
1.	Dr. Anil Mukund Limaye	Characterization of the rat ventral prostate specific PBPC1BS and S100RVP gene promoters	IIT Guwahati	5.00	NIL	2yrs
		The SHBG-R_{SHBG} pathway: insights from prostate cancer cell lines	DST(Fast Track)	19.89	NIL	3yrs
2.	Prof. Arun Goyal	Prebiotics and nutraceuticals production from Lactic acid bacteria.	Indo-Bulgarian Joint project DST,	16.0	-	3 years Jan10-Dec13
		Production of microbial carbohydrates and carbohydrate active enzymes for healthcare	Department of Bio-technology (DBT)	11.74	-	3 years Apr09 - Mar12
		Probiotic fermentation as a platform for production of neutraceuticals.	(CSIR) New Delhi	20.1	-	3 years Apr 09-Apr12
		Microbial conversion of cellulose to sugars for ethanol production	DBT	31.48	(D. Goyal) Thapar University	3 years Feb 2009-Feb 2012
		MTech Program Support	DBT	170.00	-	3years
3.	Dr. B. Anand	Understanding the Molecular Divergence of Lysozyme and □-lactalbumin by Resurrecting the Common Ancestor	IITG	5.0	-	2 years
4.	Dr. Bithiah Grace Jaganathan	Cytoskeletal organization and migration potential of Human Mesenchymal Stem Cells (MSC) during different stages of Differentiation	IITG	5.0	-	2 years
5.	Dr. Debasish Das	Screening of robust algae strains for biodiesel production	IITG	5.0	-	2 years
6.	Dr. Kannan Pakshirajan	In situ production of sophorolipid by the yeast Candida bombicola for pre-treatment of fats and oils containing dairy wastewaters	Department of Science and Technology (DST)	16.80	None	Three years starting August '08
7.	Dr. Latha Rangan	DNAB (DNA Barcoding) based biodiversity inventory in Zingiberaceae of Northeast India	DIT, Ministry of Information Technology	71.18	Dr U Bora D L Sahoo	5 years (2008-2013)
		Cloning of fatty acid saturation genes and analysis of spatial and temporal expression from seeds of candidate plus tree Karanj (*P. pinnata* L.).	DBT, Govt of India	22.64	Dr BG Jaganatha n	3 Year (2009-2012)
8.	Dr. Lingaraj Sahoo	Development and evaluation of transgenic mungbean over expressing *AtNHX1* and *AVP1* for salt tolerance	(DBT) New Delhi	78.75	None	03
		Genetic engineering of Cowpea (*Vigna unguiculata*	(DBT) New Delhi	11.62	Dr. L. Rangan	03

		L. Walp) for resistance to pod borer and bruchid				
		Amino acid polymorphism in conserved Motifs in HMA proteins and Heavy Metal Resistance in Plants	DST	4.20	Dr. S. K. Panda (AU, Assam)	03
		Molecular cloning and functional Analysis of Na^+/H^+ antiporter gene in Cowpea (*Vigna unguiculata* L. Walp)	DBT	44.88	Dr. S. K. Panda (AU, Assam)	03
9.	Prof. Pranab Goswami	Development of Enzyme Electrode for the Construction of Cholesterol Biosensor	CSIR	9.40	Dr. U. Bora	3.5
10.	Prof. R. Swaminathan	Conjugating luminescent quantum dots to proteins: consequences to protein function and development of sensitive assays	CSIR	15	None	3 years
11.	Dr Rakhi Chaturvedi	*In vitro* production of haploids in Tea (*Camellia spp)*	DBT, New Delhi	34.49	Dr. M. Hazarika TRA, Tocklai, Jorhat	2007-2011
12.	Dr. Ranjan Tamuli	Functional analysis of calcium signaling proteins in *Neurospora crassa*	DST, India	15.352	None	3 years (2010-2012)
13.	Dr. Sanjukta Patra	Protein stability prediction of lipases – in silico studies.	DIT	41.89	Dr. V.K.Dubey	03 years (2008-2011)
		Purification of caffeine from waste tea leaves and their transformation to potent pharmaceutical molecules"	DBT	66	Dr. P.K.Iyer	03 years (2011-2014)
14.	**DBT Program Support Project**					
	Dr. Siddhartha Sankar Ghosh (Project coordinator)	Fundamental Molecular Investigations in Biotechnology (Core Project)	DBT	Total 1133.68 Core grant 760.18	P. Goswami, L. Sahoo, B. Bose, A. Ramesh, S. Patra	5 years
	Principal Investigators and R&D projects sanctioned under the DBT Program Support					
	Prof. Pranab Goswami	Studies and application of redox enzymes for bioelectornics devices	DBT	94.96	Dr. S. Patra	5 years
	Dr. Biplab Bose	Combination therapy using suicide genes and recombinant antibody	DBT	97.32	Dr. S. S. Ghosh	5 years
	Dr. Siddhartha Sankar Ghosh	Investigations on the molecular mechanism of Nanomaterial cellular interactions	DBT	102.82	Dr. B. Bose, Dr. A. Ramesh	5 years
	Dr. Lingaraj Sahoo	Molecular cloning and functional characteri-zation of heavy metal stress specific phytochelatin synthase gene from *Eichhornia crassipes*	DBT	78.40	-	5 years

15.	Dr. Utpal Bora	Nanoparticle mediated targeted siRNA delivery to cancer cell lines.	Department of Science & Technology	12.96	NIL	Three years
16.	Dr. Venkata Dasu Veeranki	Process Development for the Production of Recombinant Cutinase	DST	34.5		2008-2011
17.	Dr. Vikash Kumar Dubey	Studies on effect of small molecule compounds on folding and amyloid formation of proteins	CSIR	21.50	Dr. S. Patra	03
		Studies on trypanothione Reductase from Leishmania Parasites: Structure, Function, Folding and Potential for Chemotherapy	DBT	35.76	Dr. S. Patra	03
		Structural Properties and folding mechanism of apocytichrome C552 from *Hydrogenobactor Thermophilus*	DST	11.5	None	03
		Structure, Stability and Functional Studies of 2, 5-Diketo-D-gluconate Reductase	DBT	11.65	None	03

c) Completed Sponsored Projects

S. No.	Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
1.	Dr. 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
		Development of Therapeutic Human Antibodies Against Cripto-1: Targeting Oncogenic Signaling.	DST	10.34	-	2007-2010
2.	Dr. Kannan Pakshirajan	Decolorization of textile dyeing wastewaters by the white rot fungi Phanerochaete chrysosporium in a novel rotating biological contactor reactor	Council of Scientific and Industrial Research (CSIR)	11.4984	None	Three years starting Nov. '07
		Department of Biotechnology (DBT)	Department of Biotechnology (DBT)	11.60	None	Two years starting Nov. '08
3.	Dr. Latha Rangan	Analysis of start codon context and sequence characteristics around TIS in plant model systems	DBT	5.05	Dr. K Pakshirajan	18 months

4.	Dr. Lingaraj Sahoo	Cloning of elite germplasm of Jatropha for large scale plantation	DARL (Center for Energy)	9.98	None	03
		Genetic engineering of Cowpea (*Vigna unguiculata* L. Walp) for storage pest resistance	DST	4.92	None	03
		Development of micropropagation technology for *Jatropha*: A potential biofuel plant	NEDFi	4.0	None	03
5.	Prof. Pranab Goswami	Enzymatic Biofuel Cell for Biomedical applications.	DBT	35	Anil Verma, CL; M. Barthakur, IITG Hospital; U. Bora, BT; L.Borbora,CEE	02
6.	Dr. Ranjan Tamuli	Functional analysis of translesion DNA polymerase Pol eta (η), Pol iota (ι), and Pol kappa (κ) in *Neurospora crassa*	IIT Guwahati	5.00	None	2009-2011
7.	Dr. Utpal Bora	Synthesis of Biodegradable Nanocarriers for Targeted Drug Delivery	Department of Biotechnology (DBT)	14.686	Prof.Pranab Goswami	Three years
		Electrospun nanofiber Scaffolds For Hepatic Tissue Engineering	Department of Biotechnology (DBT)	52.55	Dr. R R Bhonde Prof.Pranab Goswami	Three years
8.	Dr. Venkata Dasu Veeranki	Production of Bacterial L-Asparaginase: An approach for process optimization	DBT	12		2007-2010
9.	Dr. Vikash Kumar Dubey	Development of novel therapeutics against leishmaniasis	DIT	8.66	Dr. A. Goyal	2.5

8. CONSULTANCY

S. No.	Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
1.	Dr. Kannan Pakshirajan	Microbial investigation to overcome foul smell in finished liquid product	Jyothy Laboratories Limited, Guwahati	0.20	None	Three months starting May 2010
2.	Dr. Lingaraj Sahoo	Oil analysis and DNA fingerprinting of Jatropha and Patchouli accessions	NEDFi (From Center for Energy)	0.90	Dr. P. Mahanta	01

9. RESEARCH PUBLICATIONS (PLEASE USE SERIAL NUMBERS)
International Journal (Name of the faculty members are bold)

1. B. Ojha, A. K. Singh, M. D. Adhikari, **A. Ramesh*** and G. Das* '2-Alkylmalonic Acid: Amphiphilic chelator and a potent inhibitor of metalloenzyme', *Journal of Physical Chemistry B* 114, pp 10835-10842, 2010.
2. Rishikesh Shukla, Ilia Iliev and ***Arun Goyal** (2010) Purification and characterization of dextransucrase from *Leuconostoc mesenteroides* NRRL B-1149. Biotechnology and Biotechnological Equipnment 24(2)SE, 576-580.
3. Seema Patel, Naresh Kasoju, **Utpal Bora** and ***Arun Goyal** (2010) Structural analysis and biomedical applicatins of dextran produced by a new isolate *Pediococcus pentosaceus* screened from biodiversity hot spot Assam. Bioresource Technology, 101, 6852-6855.
4. Seema Patel and ***Arun Goyal** (2010) Isolation, characterization and mutagenesis of exopolysaccharide synthesizing new strains of lactic acid bacteria. Internet Journal of Microbiology 8(1).
5. **Bithiah Grace Jaganathan** , Veronica Tisato , Thomas Vulliamy, Inderjeet Dokal, Judith Marsh, Francesco Dazzi, Dominique Bonnet. Effects of MSC co-injection on the reconstitution of aplastic anemia patient following hematopoietic stem cell transplantation, *Leukemia*. 2010 Oct; 24 (10):1791-5.
6. **Debasish Das**, Aditya Basu, Anshul Nigam, Prashant S. Phale and Pramod P. Wangikar 'Dynamics of rate limiting enzymes involved in the sequential substrate uptake by *Pseudomonas putida* CSV86: Modeling and experimental validation', *Process Biochemistry*, 46(3):701-708, 2011.
7. Priyanka Dhar and **Gurvinder Kaur** . Cuticle-degrading proteases produced by *Metarhizium anisopliae* and their induction in different media. *Indian Journal of Microbiology,* 50(4): 449-455, 2010.
8. Priyanka Dhar and **Gurvinder Kaur**. Effects of carbon and nitrogen sources on the induction and repression of chitinase enzyme from *Beauveria bassiana* isolates. *African Journal of Biotechnology,* 9 (47), 8092-8099, 2010.
9. Priyanka Dhar and **Gurvinder Kaur.** Production of cuticle - degrading proteases by *Beauveria bassiana* and their induction in different media. *African Journal of Biochemistry Research*, 4(3), 65-72, 2010.
10. A. Daverey and **K. Pakshirajan*** 'Pretreatment of synthetic dairy wastewater using the sophorolipid producing yeast *Candida bombicola', Applied Biochemistry and Biotechnology*, 163 (6), 720-728, 2011.
11. A. Ghosh, **K. Pakshirajan***, P.K. Ghosh and N.K.Sahoo 'Perchlorate degradation using an indigenous microbial consortium predominantly *Burkholderia* sp.', *Journal of Hazardous Materials*, 187 (1-3) 133–139, 2011.
12. S. Kumar, V. Venkata Dasu and **K. Pakshirajan** 'Assessment of Physical Process Conditions for Enhanced Production of Novel Glutaminase-Free L-Asparaginase from *Pectobacterium carotovorum* MTCC 1428', *Applied Biochemistry and Biotechnology*, 163 (3), 327–337, 2011.
13. **K. Pakshirajan***, A. Sivasankar and N.K. Sahoo 'Decolourization of synthetic wastewater containing azo dyes by immobilized *Phanerochaete chrysosporium* in a continuously operated RBC reactor', *Applied Microbiology and Biotechnology*, 89 (4):1223–1232, 2011.
14. S.J. Sarma, **K. Pakshirajan*** and B. Mahanty 'Chitosan coated alginate-polyvinyl alcohol beads for encapsulation of silicone oil containing pyrene: a novel method for biodegradation of polycyclic aromatic hydrocarbons', *Journal of Chemical Technology and Biotechnology*, 86(2), 266-272, 2011.

15. S. Kumar, V. Venkata Dasu and **K. Pakshirajan** 'Purification and characterization of glutaminase-free L-asparaginase from *Pectobacterium carotovorum* MTCC 1428', *Bioresource Technology*, 102 (2), 2077-2082, 2011.
16. S.J. Sarma and **K. Pakshirajan*** 'Surfactant aided biodegradation of pyrene using immobilized cells of *Mycobacterium frederiksbergense'*, *International Biodeterioration and Biodegradation*, 65 (1), 73-77, 2011.
17. **K. Pakshirajan*** and S. Singh 'Decolourization of synthetic wastewater containing azo dyes in a batch operated rotating biological contactor reactor with the immobilized fungus *Phanerochaete chrysosporium', Industrial and Engineering Chemistry Research*, 49 (16), 7484–7487, 2010.
18. B. Mahanty, **K. Pakshirajan*** and **V. V. Dasu** 'Batch biodegradation of PAHs in mixture by *Mycobacterium frederiksbergense*: analysis of main and interaction effects', *Clean Technologies and Environmental Policy*, 12 (4), 441–447, 2010.
19. A. Daverey and **K. Pakshirajan*** 'Effect of different oils and media constituents on the production of sophorolipids by *Wickerhamiella domercqiae', International Journal of Microbes and Environmental Management*, 1 (1), 11-15, 2010.
20. N.K. Sahoo, **K.Pakshirajan*** and P.K.Ghosh 'Enhancing the biodegradation of 4-chlorophenol by *Arthrobacter chlorophenolicus A6* via medium development', *International Biodeterioration and Biodegradation*, 64 (6), 474-480, 2010.
21. A. Daverey and **K. Pakshirajan*** 'Sophorolipids from *Candida bombicola* using mixed hydrophilic substrates: production, purification and characterization', *Colloids and Surfaces B: Biointerfaces*, 79 (1), 246-253, 2010.
22. S.J. Sarma and **K. Pakshirajan*** 'An immobilized cell system for biodegradation of pyrene by *Mycobacterium frederiksbergense', Polycyclic Aromatic Compounds*, 30 (3), 129-140, 2010.
23. S. Singh and **K. Pakshirajan*** and A. Daverey 'Enhanced decolourization of Direct Red – 80 dye by the white rot fungus *Phanerochaete chrysosporium* employing sequential design of experiments', *Biodegradation*, 21 (4), 501-511, 2010.
24. S. Singh, A. Daverey and **K. Pakshirajan***'Screening and optimization of media constituents for decolourization of Mordant Blue - 9 dye by *Phanerochaete chrysosporium', Clean Technologies and Environmental Policy*, 12 (3), 313-323, 2010.
25. V Kesari, MS Vinod, A Parida, **L Rangan*** (2010) Molecular marker based characterization in candidate plus trees of *Pongamia pinnata*, a potential biodiesel legume from North Guwahati, Assam. *Annals of Botany PLANTS* Vol 2010, plq017 DOI 10.1093/aobpla/plq017.
26. G Dwivedi, S Hallihosur, **L Rangan*** (2010) Evergreening- A deceptive devise in patent rights. *Technology in Society* 32(4): 324-330.
27. V Kesari, **L Rangan*** (2010). Development of *Pongamia pinnata* as an alternative biofuel crop- current status of plantations in India and scope. *Journal of Crop Science and Biotechnology* 13(3): 127-137.
28. Tushar, S Basak, GC Sarma, **L Rangan*** (2010) Ethnomedical uses of Zingiberaceous plants of Northeast India. *Journal of Ethanopharmacology* 132(1): 286-296
29. V Kesari, **L Rangan*** (2010) Effect of genotype and auxin treatments on rooting response in stem cuttings of CPTs of *Pongamia pinnata*. *Current Science* 98: 1234-1237.
30. A Das, V Kesari, **L Rangan*** (2010) Plant regeneration in *Curcuma* species and assessment of genetic stability of regenerated plants. *Biologia Plantarum* 54 (3): 423-429.
31. V Kesari, A Das, **L Rangan*** (2010) Physico-chemical characterization and microbial assay from seed oil of *Pongamia pinnata*, potential biofuel crop. *Biomass and Bioenergy* 34: 108-115.

32. Panda SK, **Sahoo L**, Katsuhara M and Matsumoto H (2010) Overexpression of alternative oxidase (AOX) gene alters respiration capcity, response to ROS and confers aluminium tolerance in tobacco (*Nicotiana tabacum* L.) cells. Env. and Exp. Bot. (Accepted)

33. Purkayastha J., Sugla T., Paul A., Mazumdar P., Basu A., Solleti S. K., Mohommad A., Ahmed Z. and **Sahoo L**. (2010) Efficient in vitro plant regeneration from shoot apices and gene transfer by particle bombardment in *Jatropha curcas*. Biologia Plantarum. 54, 13-20 (DOI: 10.1007/s10535-010-0003-5)

34. Mazumdar P, Basu A, Paul A, Mahanta C and **Sahoo L**. (2010) Age and orientation of the cotyledonary leaf explants determine the efficiency of de novo plant regeneration and *Agrobacterium tumefaciens*- mediated transformation in *Jatropha curcas* L. South African Journal of Botany (DOI:10.1016/j.sajb.2010.01.001)

35. Paul A, Thapa G, Basu A, Mazumdar P, Kalita MC and **Sahoo L** (2010) Rapid plant regeneration, analysis of genetic fidelity and essential aromatic oil content of micropropagated plants of Patchouli, Pogostemon cablin (Blanco) Benth. - an industrially important aromatic plant, Industrial Crops and Products, 32 (2010) 366–374

36. Urmila Saxena, Mitun Chakraborty, **Pranab Goswami*** Covalent immobilization of cholesterol oxidase on self-assembled gold nanoparticles for highly sensitive amperometric detection of cholesterol in real samples. *Biosensors and Bioelectronics* 26:3037–3043 (2011).

37. Preety Vatsyayan and **Pranab Goswami***, Acidic pH conditions induce dissociation of the haem from the protein and destabilise the catalase isolated from *Aspergillus terreus* MTCC 6324, *Biotechnology Letters* 33:347–351(2011)

38. Preety Vatsyayan, Sandip Bordoloi, **Pranab Goswami***, Large catalase based bioelectrode for biosensor application, *Biophysical Chemistry*, 153 (2010) 36–42.

39. Urmila Saxena, Madhuri Das, Seraj Ahmed, Lepakshi Barbora, Mala Borthakur, Anil Verma, Utpal Bora and **Pranab Goswami*** Multiwalled Carbon Nanotube-Based Enzyme Electrode for Total Cholesterol Estimation in Human Serum, *Journal of Experimental Nanoscience* 6 (1) 84-95 (2011).

40. Urmila Saxena and **Pranab Goswami***, Silk Mat as Bio-matrix for the Immobilization of Cholesterol Oxidase. *Applied Biochemistry and Biotechnology* (2010) 162:1122–1131.

41. Singh M. and **Chaturvedi Rakhi*.** 2010. Optimization of *Spilanthes acmella L.* cultivation by in vitro nodal segment culture. Acta Hort. (ISHS) 865: 109-114.

42. Singh M. and **Chaturvedi Rakhi*. 2010.** Improved clonal propagation of *Spilanthes acmella* Murr. for production of scopoletin. *Plant Cell, Tiss. Organ Cult.* 103: 243-253.

43. Srivastava P. and **Chaturvedi Rakhi*. 2010.** Simultaneous determination and quantification of three pentacyclic triterpenoids-betulinic acid, oleanolic acid, and ursolic acid-in cell cultures of *Lantana camara* L. *In Vitro Cell. Dev. Biol. - Plant*. 46: 549-557.

44. Srivastava P., Kasoju N., **Bora U**. and **Chaturvedi Rakhi*. 2010.** Accumulation of betulinic acid, oleanolic acid and ursolic acid in *in vitro* cultures of *Lantana camara* L. and their cytotoxic activity against HeLa cell lines. *Biotechnol. Bioprocess Engg*. 15: 1038-1046.

45. Srivastava P., Sisodia V. and, **Chaturvedi Rakhi*. 2011.** Effect of culture conditions on synthesis of triterpenoids in suspension cultures of *Lantana camara* L. *Bioprocess Biosyst Eng*. 34: 75-80.

46. **Tamuli, R**., Kumar R. and Deka, R. (2010). Cellular roles of neuronal calcium sensor-1 and calcium/calmodulin-dependent kinases in fungi. J. Basic Microbiology DOI: 10.1002/jobm.201000184.

47. M. Goel and **R. Tamuli** 'RPL10 (ribosomal protein L10). Atlas Genet Cytogenet Oncol Haematol' August 2010 (online publication).
URL: http://AtlasGeneticsOncology.org/Genes/RPL10ID42148chXq28.html

48. Debamitra C, Saravanan P, Dubey VK and **Sanjukta P**. In Silico Characterization of Thermostable Lipases. Extremophiles. 15(1):89-103

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61. A Das, N Kasoju, **U Bora**, **L Rangan*** (2010) Biochemical, antimicrobial and pharmacological screening of flavanoids from *Z. moran* of Northeast India. National Conference on Emerging Trends in Biopharmaceuticals: Relevance to Human Health & 4th Annual Convention of Association of Biotechnology and Pharmacy, 11-14th November 2010, Thapar University, Patiala, pp. 34. (Oral presentation)
62. V Kesari, AM Ramesh, **L Rangan*** (2010) Characterization in candidate plus trees (CPTs) of *Pongamia pinnata* (L.) Pierre, a versatile legume from North Guwahati, - A review. 33rd Conference of Indian Botanical Society and International Symposium on the New Horizons of Botany, 10th-12th Nov 2010, Shivaji University, Kolhapur, Maharashtra. p 217. (Poster presentation).
63. Tushar, S Aggarwal, MS Vinod, A Parida, **L Rangan*** (2010) Mining of *Curcuma* species from Assam using plastid specific DNA barcodes. First National Conference on Biotechnology, Bioinformatics and Bioengineering, 17-18th December 2010, Dharmapuri, Tamil Nadu, pp. 39 (Oral presentation).
64. V Kesari, S Ramachandran, AM Ramesh, MS Vinod, A Parida, **L Rangan*** (2010) Morphological and biomolecular approach in CPTs of *P. pinnata*, a promising crop from North Guwahati. 2nd Edition of Indian Youth Science Congress, June 26-28th 2010, Chennai. p.119 (Poster presentation) *(AWARDED BEST POSTER IN ENERGY AND ENVIRONMENTAL SCIENCE)*
65. Mishra V.K., Khare A. and **Chaturvedi Rakhi***. Assessment of He-Ne Laser pre-treatment of seeds on morphological, physiological and biochemical properties of *B. juncea* seedlings. In: 55th Annual Technical Session, Assam Science Society, February 15th, 2010. Gauhati University, Guwahati, Assam, India. Page No. 12, 2010.
66. *In silico* prediction of mechanism of action of cytseine protease inhibitors from mushroomChakravorty D, Singh S K**, Patra S**. 51st conference of Association of microbiologists of India (AMI), December 14-16, 2010 at Birla Institute of Technology: Mesra Ranchi (India)
67. R. K.Das, A. Sett, N. Kasoju, S. Bapatla, **U. Bora**, Role of PCL in nanoparticle based drug delivery, National Conference on Tissue Engineering held at NIT, Rourkela (March 21-22, 2011): *Won The Best Poster Presentation Award.*

Book, Chapter, etc.

1. A. Daverey and **K. Pakshirajan***'Recent advances in bioremediation of contaminated soil and water using microbial surfactants', *Microbes and Microbial Technology*, Ahmad, I., (Ed), Springer, New York, pp 207-228, 2011.

10. CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL (In tabular format as given)

S. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
1.	Dr. Aiyagari Ramesh	National Symposium on Trends in Cellular Biochemistry and Biophysics	University of Kalyani, West Bengal	5-6 October 2010	National
		National Conference on Frontiers in Chemical Sciences (FICS) - 2010	Indian Institute of Technology Guwahati,India	3-4 December 2010	National
2.	Dr. Anil Mukund Limaye	30th Annual Convention of Indian Association for Cancer Research and International Symposium on "Signaling Network and Cancer"	Kolkata, India	6-9 Feb, 2011	International symposium
		79th Annual Meeting of the Society of Biological Chemists (India)	Bangalore, India	13-15 Dec, 2011	National Conference
3.	Prof. Arun Goyal	4th International Congress on Bioprocess in Food Industries	Curitiba, Brazil	Oct 5-8, 2010	International
		International Conference on Genomic Sciences	Madurai Kamraj University, India	Nov 12-14, 2010	International
4.	Dr. B. Anand	FCS 2010	NEHU, Shillong	Nov 8– Nov 14, 2010	National
		79th Annual Meeting of the Society of Biological Chemists (India)	IISc, Bangalore	Dec 13 – Dec 15, 2010	National
5.	Dr. Bithiah Grace Jaganathan	International Society for Stem Cell Research 8th Annual Meeting	San Francisco, USA	June 16-19 2010	International
6.	Dr. Kannan Pakshirajan	Forming a Network for Education for Sustainable Development in Asia	Kyoto, Japan	October 27-31, 2010	International
7.	Dr. Latha Rangan	Bioenergy Systems Research Initiative	UGA Athens, USA	15th Nov 2010	International
		Young Indian Science Congress	SRM University, Chennai	26-28th June 2010	National
8.	Prof. Pranab Goswami	International Conference on Molecular and Functional Catalysis	Singapore	11-15 July 2010.	International
9.	Prof. R. Swaminathan	55th Annual Meeting of the Biophysical Society	Baltimore, USA	5th-9th March 2011	International
10.	Dr. Ranjan Tamuli	Neurospora 2010 Meeting	Asilomar, USA	8-10 Apr 2010	International
		World Congress on Biotechnology2011	Hyderabad, India	21-23 March 2011	International
11.	Dr. Siddhartha Sankar Ghosh	Second International Conference on "Natural Polymers and Biomaterials	Kottayam, Kerala	September 24th-26th 2010	International
		"Frontiers in Chemical Science (FICS-2010)"	IIT Guwahati	December 3rd-4th 2010	National
12.	Dr. V. V. Dasu	International Conference on Genomic Sciences 2010	Madurai, Tamil Nadu, India	12-14 Nov. 2010	International
13.	Dr. Vikash Kumar Dubey	15th International Conference Indian Society of Chemists and Biologists	Rajkot	Feb. 4-7, 2011	International
		International Conference on Genomics Science	Madurai	Nov. 12-14, 2010	International
		10th Agriculture Science Congress	Lucknow	Feb 10-12, 2011	National
		National conference on Biological Chemistry	Visakhapatnam	Nov. 29-30, 2010	National

11. INVITED LECTURES OF FACULTY: IN INDIA, ABROAD (In tabular format as given below) (Please avoid lectures delivered in Short Term Courses or Refresher Courses)

S. No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1.	Dr. Aiyagari Ramesh	Nano-Bio Interface: Harnessing the Power of "Small" in Biological Applications.	Department of Biochemistry and Biophysics, University of Kalyani	Kalyani, West Bengal	6 October 2010
		Exploiting Nanomaterial-Based Tools and Synthetic Amphiphiles in Biological Applications	Indian Institute of Technology Guwahati	Guwahati	3 December 2010
2.	Prof. Arun Goyal	Exploring structure and biotechnological applications of dextrans from Lactic acid bacteria isolated from microbial diversity hot spot in India	4th International Congress on Bioprocess in Food Industries	Curitiba, Brazil	Oct 5-8, 2010
		Applications of Dextrans and Oligosaccharides	Jawaharlal Nehru Technological University, Anantapur	Andhra Pradesh	Oct. 29, 2010
		Enhanced production of bioactive dextran from a novel strain of *Pediococcus pentosaceus* by UV-mutagenesis and Response surface methodology	International Conference on Genomic Sciences	Madurai Kamraj University, Tamil Nadu, India	Nov 12-14, 2010
3.	Dr. B. Anand	Structural Basis for the Diversity in the Catalytic Mechanisms of GTPases	NEHU	Shillong	Oct 27, 2010
		Genome Analyses and Sequence Based Phylogeny	Gauhati University	Guwahati	Nov 23, 2010
4.	Dr. Latha Rangan	Genome mining in Zingibereceae	Department of Genetics, University of Gerogia, Athens	Georgia, USA	16th Dec 2010
		Progress in area of Crop Biotechnology	Vivekanandha College of Engineering for Women	Trichungode, TN	12th March 2011
		Challenges in Biotechnology	SRM University	Chennai	26th June 2010
		IPR and Bioresources protection in NE India	IITG-NRDC Joint Regional Seminar on information and analytical tools for the life science researcher.	IIT Guwahati	6th May 2010
5.	Prof. Pranab Goswami	Application potential of large catalase from *Aspergillus terreus* MTCC 6324 for bioelectronic devices"	International Conference on Molecular and Functional Catalysis	Singapore	14 July 2010
		Prof. A. C. Dutta memorial lecture.	Department of Botany, Cotton College.	Guwahati	28th January 2011.
6.	Prof. R. Swaminathan	Protein aggregation diseases	North-Eastern Hill University	Shillong	26th March 2011
		Fluorescence Techniques for Biology	North-Eastern Hill University	Shillong	26th March 2011

7.	Dr. Ranjan Tamuli	Harnessing Technology from Nature	Dhemaji College	Dhemaji	1.08.2010
		Modern tools and techniques for Gene and genome analysis (Restriction mapping, ORF finding PCR primer designing etc.	Gauhati University	Guwahati	24.11.2010
		Homology Modelling & Sequence analysis for Phylogenetic study	Cotton College	Guwahati	26.03.2011
8.	Dr. Siddhartha Sankar Ghosh	Silver Nanocomposites as Antimicrobial and Anticancer Agents	Institute of Macromolecular Science and Engineering (IMSE)	Kerala	25th September 2010
		Nanoscale materials as potential therapeutic agents	Indian Institute of Technology Guwahati	Guwahati	3rd December 2010
9.	Dr. Utpal Bora	Networking Bioresource Repositories And Biobanking In India.	ANRC AND RIKEN BRC.	JAPAN	28thOctober 2010
		Molecular Biology Techniques	Zoological Society of Assam and Cotton College	Cotton college	24th March, 2011
		Traditional fermented food of North East India	DBT, IBSD	Imphal	4-5th September, 2010
		National symposium on biodiversity of Assam: Status, Development and Conservation	Assam Science Society	Guwahati	4-5th December, 2010
10.	Dr. Vikash Kumar Dubey	Protein Biochemistry for food and human health.	15th ISCB International Conference Indian Society of Chemists and Biologists	Rajkot	Feb. 6, 2011
		Deciphering the molecular mechanism underlying the activity of antitumor agents as antileishmanial and their potential for therapy	National conference on Biological Chemistry.	Visakha-patnam	Nov. 29, 2011

12. VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS (In tabular format as given below) (Only distinguished visitors invited by appropriate authority): Please see Sl. No. 15.

13. SHORT-TERM COURSES

DBT PROGRAM SUPPORT PROJECT SPONSORED SHORT TERM TRAINING COURSE ON "Advanced Techniques in Cellular and Molecular Biology" (15th – 19th November 2010), **Coordinator Dr. Biplab Bose.**

14. SEMINARS/WORKSHOPS/CONFERENCES ORGANIZED (In tabular format as given below): None

15. INVITED LECTURES (In tabular format as given below)
(Only of distinguished visitors invited for talks)

S. No.	Name	Name of Inst./Org.	Name of Lecture	Date
1	Dr. Parthasarathi Das	Discovery Chemistry Aurigene Discovery Technologies Ltd. Dr. Reddy's Laboratory Ltd., Hyderabad	Drug Discovery and Development: An Overview	6th April 2010
2	Professor T. Satyanarayana	Department of Microbiology University of Delhi South Campus	Cell-bound phytase of the yeast *Pichia anomala*: Production, characteristics and applications	21st May 2010
3	Prof. U.C. Banerjee	Professor and Head Department of Pharmaceutical Technology, NIPER	Enantiomeric synthesis of chiral drug intermediates through chemoenzymatic route	1st June 2010
4	Prof. M V Deshpande	National Chemical Laboratory, Pune	Fungal Dimorphism	21st June 2010
5	Prof. Satyahari Dey	Department of Biotechnology IIT Kharagpur	Innovation in Plant Biotechnology: Global scenario and Indian perspectives	21st Sep 2010
6	Dr. J. P. Tamang	Department of Microbiology Sikkim Central University	Updated Research Status: Microbiology, Nutrition and Socio-Cultural Aspects of Ethnic fermented Foods and Beverages of the Himalayas	8th Oct 2010
7	Prof. Aparna Dutta Gupta	University of Hyderabad	Identification of regulatory proteins from insect blood and their function during development	19th Nov 2010
8	Prof Hiroyuki Koyama	Gifu University, Japan	Molecular Regulation of Aluminium Tolerance in Arabidopsis	28th March, 2011

16. PATENT FILED: None

17. AWARDS AND HONOURS (Only awards/honours at national/international level from reputed organisations)

Prof. Arun Goyal:

- Dr. C.V. Raman Award (Citation and Cash Award of Rs 11,000/-) for the 4th IES "National Young Teachers Excellence Award 2010" for excellence in the field of Engineering & Technology Education, by IES Group of Institutions, Bhopal.
- Elected as Fellow, National Academy of Biological Sciences, (FNABS), March 2011.
- Invited to Chair the Session on Microbial Genomics in International Conference on Genomic Sciences (ICGS), Nov. 12-14, 2010, Madurai Kamraj University, Tamil Nadu, India.
- Invited to Chair Panel of judges for Best Poster Awards at International Conference on Genomic Sciences (ICGS), Nov. 12-14, 2010, Madurai Kamraj University, Tamil Nadu, India.

Dr. Kannan Pakshirajan:

- Dr. Kannan Pakshirajan, Associate Professor, Department of Biotechnology was awarded the Indian National Science Academy (INSA) Medal for Young Scientists 2010 at the academy's annual general meeting held at Indian Institute of Science, Bangalore, during December 28-30, 2010, for achieving excellent synergy between chemical engineering and environmental biotechnology to accomplish remediation of heavy metals and azo dyes using the basidiomycete *Phanerochaete chrysosporium.*

Dr. Latha Rangan:

- Dr L. Rangan: Visiting Scientist, Department of Genetics, University of Georgia, USA (Oct 2010 – Dec 2010)
- Dr L. Rangan: Invited to Chair Plant Sciences Section during Indian Youth Science Congress (IYSC), SRM University Chennai June 2010
- Dr. L. Rangan: Elected as Associate Member, National Academy of Sciences (NASI) India Allahabad
- Dr. L. Rangan: Co-ordinator and Assam State Representative, Member IYSC 2010-2011.

Prof. Pranab Goswami:

- Pranab Goswami: Felicitated as resource person and delivered a lecture in a training course in life science for senior faculty of university and colleges during 5th October 2010 in Academic Staff college, Gauhati University, India.

- Pranab Goswami: Felicitated as resource person and delivered Prof. A. C. Dutta memorial lecture at Department of Botany, Cotton College, Guwahati on the topic "Advances in Biosensors Research" on 28th January 2011.

Dr. Vikash Kumar Dubey:

- Dr. V. K. Dubey: "Young Scientist Award" of the Biotech Research Society of India (BRSI).
- Dr. V. K. Dubey: "Young Scientist Award" of "National Academy of Agriculture Sciences (NAAS)
- Dr. V. K. Dubey: Young Scientist Award (Biological Sciences)" of Indian Society of Chemists and Biologists (ISCB).
- Dr. V. K. Dubey: Selected for Associateship of "National Academy of Agriculture Sciences".
- Dr. V. K. Dubey: Elected as MNASc (Member, The National Academy of Sciences, India).

18. ANY OTHER (SPECIAL MENTION)

(i) **Ms. Seema Patel**, PhD completed in June 2010, supervisor, **Prof Arun Goyal**.
(ii) **Ms. Uzma Mustafa,** PhD completed in June 2010, supervisor, **Dr. Gurvinder Kaur Saini**.
(iii) **Ms Preety Vatsyayan** completed PhD degree under the supervision of **Prof. Pranab Goswami**
(iv) **Priyanka Dhar received** "International Travel Support Scheme" from DST for attending an International Conference, "9th International Mycological Congress" held at Edinburgh, UK from 1-6 Aug 2010 supervisor, **Dr. Gurvinder Kaur Saini**.
(v) **Mr Tushar**, PhD student **awarded US India Fullbright Nehru Research Scholarship** for 9 months 2011-2012; supervisor, **Dr. Latha Rangan**.
(vi) **Mr Ramachandran Sarath**, MTech Student received **Best Poster Award** in Area of Energy and Environmental Sciences in IYSC 2010 held at Chennai; supervisor, **Dr. Latha Rangan**.
(vii) **Mr Sudipta Ghosh**, PhD student received **Second Best Poster Award** in an International Workshop on Biodiversity and Climate Change held at IIT Kharagpur 2010; supervisor, **Dr. Latha Rangan**.
(viii) **Priyanka Srivastava** completed her Ph.D. in Sepetember 2010 and awarded Doctorate degree, under the supervision of **Dr Rakhi Chaturvedi**
(ix) **Urmila Saxena** , PhD student working under the supervision of **Prof. Pranab Goswami** won **best paper award** in the *International Conference On Frontier in Biological Sciences* (InCOFIBS 2010) held at National Institute of Technology, Rourkela, p139, 1-3 OCT (2010) for her paper "Gold nanoparticle based cholesterol biosensor".
(x) **Dr. Siddhartha Sankar Ghosh** elected as a Member, Central Technical Committee (CTC), DBT- Nodal Cell.
(xi) **Dr. Utpal Bora** selected as a Member of School Board, School of Engineering and Technology, Nagaland University.

19. LIST OF FACULTY MEMBERS ALONG WITH PhD, DESIGNATION, AND AREAS OF INTEREST (In alphabetical order according to surname)

S. No.	FACULTY MEMBER	DESIGNATION	AREAS OF INTEREST
1.	Anand B., Ph.D.	Assistant Professor	Structural Biology, Bioinformatics & Computational Biology, RNA Biology, Molecular Evolution
2.	Bora Utpal, Ph.D.	Associate Professor	Biomaterials, Nanotechnology, Drug Delivery and Tissue Engineering
3.	Bose Biplab, Ph.D.	Assistant Professor	Therapeutic recombinant antibodies, Molecular cell Biology, Theoretical Biology
4.	Chaturvedi Rakhi, Ph.D.	Associate Professor	Plant Cell, Tissue & Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and Characterization of Plant Secondary Metabolites
5.	Chaudhary Nitin, Ph.D.	Assistant Professor	Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions Curvature inducing proteins
6.	Das Debasish, Ph. D.	Assistant Professor	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel
7.	Veeranki Venkata Dasu, Ph. D.	Associate Professor	Bioprocess Development (upstream to downstream), Metabolic Engineering, Bioenergy
8.	Dubey Vikash Kumar, Ph.D.	Associate Professor	Parasite Biology, Protein folding and aggregation, Proteases; Environmental Proteomics.
9.	Ghosh Siddhartha Sankar, Ph. D.	Associate Professor	Gene Therapy, Expression Cloning (Mammalian Systems), Nanobiotechnology
10.	Goswami Pranab, Ph.D.	Professor	Biocatalysis, Biosensor, Enzymatic Biofuel cell, and Biotransformation
11.	Goyal Arun, Ph.D.	Professor and Head	Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes and other industrial microbial enzymes

12.	Jaganathan Bithiah Grace, Ph.D.	Assistant Professor	Mesenchymal Stem Cells (Biology, For Tissue repair, In health and disease), Cell Therapy, Rho GTPases and Haematopoietic Stem Cells
13.	Limaye Anil Mukund, Ph.D.	Assistant Professor	Molecular endocrinology, Cancer biology Gene expression and regulation in Eukaryotic and Prokaryotic systems
14.	Pakshirajan Kannan, Ph.D.	Associate Professor	(a) Environmental Biotechnology: removal and recovery of heavy metals from wastewaters by biosorption, microbial treatment of contaminated environment (air and water), utilization and reuse of waste materials for the production of microbial products (b) Biotechnological Products and Process Engineering: production, characterization and properties, process design, kinetics and optimization (c) Biohydrometallurgy and (d) Biofuels
15.	Patra Sanjukta, Ph.D.	Assistant Professor	Enzymes - applications in pharma and food industry
16.	Ramesh Aiyagari, Ph.D.	Associate Professor	Nanobiotechnology, Molecular Microbiology
17.	Rangan Latha, Ph.D.	Associate Professor	Molecular systematics, Biofuel, IPR
18.	Sahoo Lingaraj, Ph.D.	Associate Professor	Genetic engineering and functional genomics of plants
19.	Saini Gurvinder Kaur, 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
20.	Swaminathan R., Ph.D.	Professor	Spectroscopic and computational approaches to investigate the following: Intrinsically Disordered Proteins: Their identity and prevalence in the Proteome, Protein Aggregation: Their mechanisms and approaches to inhibit aggregation, Biochemical consequences of Macromolecular Crowding inside living cells.
21.	Tamuli Ranjan, Ph.D.	Assistant Professor	Calcium signaling, DNA repair
22.	Trivedi Vishal, Ph.D.	Assistant Professor	Intracellular Signaling in *Plasmodium falciparum*.

20. Office Staff Members

S. No.	Name of the Staff Member	Designation
1	Barah Niranjan	Junior Technical Superintendent
2	Baruah Rashmi , M.Sc. Botany, BEd	Junior Technical Superintendent
3	Islam Nurul, M.Sc. Agril. Biotech.	Junior Technical Superintendent
4	Swargari Prarthana, M.Sc. Biochemistry	Junior Technical Superintendent
5	Sarma Dhrubajyoti	Junior Assistant
6	Bhuyan Pankaj	Attendant