







Supported by BIRAC under BioNEST Scheme

# WORKSHOP ON BASIC MOLECULAR BIOLOGY LABORATORY TOOLS AND TECHNIQUES

July 9-13, 2019

### About the workshop

Molecular biology relates to understanding the interactions between the various systems of a cell, including the interrelationship of DNA, RNA and protein synthesis and learning how these interactions are regulated. The recent advancements in molecular biology techniques play a major role in biomedical and healthcare innovations. The current workshop focuses on basic molecular biology tools and techniques. The participants persons will be provided theoretical knowledge with emphasis on hands-on training through experimentation. At the end of the workshop, participants would be able to clone and over express the gene of interest themselves.

### **Lecture Topics:**

- Gene Cloning and Expression Vectors
- The Foundation of Molecular Cloning
- Environmental Implications of rDNA Technology
- Role of rDNA technology to improve life
- Ethical issues in using rDNA Technology

### **Experimental Sessions:**

- Genomic DNA isolation
- Plasmid DNA isolation
- Agarose Gel analysis
- Restriction digestion
- Ligation
- Competent cell preparation
- Transformation
- Screening of recombinants

### **Course Director**

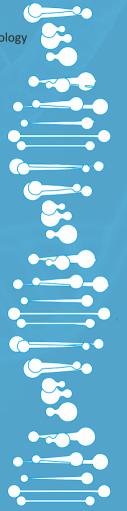
Malabika Biswas Assistant Professor Dept of Biological Sciences

### **Resource Persons**

AnasuyaGanguly Associate Professor Dept of Biological Sciences

Arnab Banerjee Assistant Professor Dept of Biological Sciences

IndraniTalukdar Assistant Professor Dept of Biological Sciences



### **BITS BIRAC BIONESTBITS BIRAC BIONEST**

BITS BIRAC BioNEST focused in the area of Health and Environment, has a 3500 square feet (1500 sqft Office Space & 2000 sq. ft. Innovation Lab) state-of-the-art infrastructure. It aims to help startups by providing them equipment, space and supporting facilities to test their ideas, prototype in the lab and take it to the market. We invite entrepreneurs, investors, engineers and scientists to be a part of our network and create forward-looking start-ups.

**Specialized features**: Cell Culture Lab, Molecular Biology, Microbiology, Biochemical Processing Lab, Physico-chemical Analysis Lab, Sample Processing Lab, Biosafety Level II, Video Conferencing facility Companies incubated currently: 05

### BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, K.K. BIRLA GOA CAMPUS

The Birla Institute of Technology & Science (BITS), Pilani is an all-India Institute for higher education with campuses in Goa, Hyderabad, Pilani and Dubai. Over the years, BITS provides the highest quality technical education to students from al over India, admitted only on merit through the BITSAT examination. The institute alumni are located across the world in various area so fengineering, science and entrepreneurship. The institute symbolizes the maturing of Indian technical ability and "can-do" entrepreneurialspirit.

### **BIRAC**

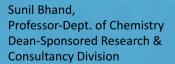
Biotechnology Industry Research Assistance Council (BIRAC) is a not - for - profit Section 8, Schedule B, Public Sector Enterprise, set up by Department of Biotechnology (DBT), Government of India as an interface agency to strengthen and empower emerging biotech enterprises to undertake strategic research and innovation, addressing nationally relevant product development needs. BIRAC is an industry-academia interface and implements its mandate through a wide range of impact initiatives, be it providing access to risk capital through targeted funding, technology transfer, IP management and hand holding schemes that help bring innovation excellence to the biotech firm sand make them globally competitive. In its seven years of existence, BIRAC has initiated several schemes, networks and platforms that help to bridge the existing gaps between industry and academia.

### **PROJECT INVESTIGATOR & IN-CHARGE**

Mridula Goel, Associte Professor, Dept. of Economics Contact: 0832 2580254

#### **TECHNICAL DIRECTORS**

Srikanth Mutnuri, Professor & Head, Dept. of Biological Sciences





### **Support Team:**

Vinobiah Balakrishnan, Manager Sahita Desai, Senior Technician



### **EQUIPMENT LIST**

Analytical Weighing Balance, Shimadzu Corporation, Japan Autotitrator, Metrohm, Switzerland Autoclave, Labomed, America Biosafety Cabinet BSL II, Esco Micro Pte. Ltd., Singapore COD Analyzer, Merck, Germany CO2 Incubator, New Brunswick, Germany Compound Microscope, Labomed, USA Deep Freezer, Esco Micro Pte. Ltd., Singapore Fermenter, Sartorius StedimBiotech, Germany Fluorescence Microscope, Olympus Corporation, Tokyo Fumehood, Cleanair Systems, India Gel Documentation System, VilberLourmat, France High Speed Refrigerated Centrifuge, REMI, India Hot Air Oven, Bio-Technics India, India Ice Flaking Machine, Borg Scientific, India Incubator Shaker, Scigenics India Pvt. Ltd., India Kjeldhal Setup, Kjel Plus, Pelican Equipments, India

Laminar Flow, Cleanair, India Lyophilizer, Labconco Corporation, USA Muffle Furnace, Bio-Technics India, India Multistage Incubator, Esco Micro Pte. Ltd., Singapore Oxy Top BOD, WTW, a xylem brand, Germany PCR, Bio-Rad Laboratories, Inc., USA pH meter, Eutech Instruments, Singapore Real Time PCR, Applied biosystems, Singapore Refrigerator, LG, India Rotary Evaporator, Genetix Biotech Asia Pvt. Ltd., India Spray Dryer, Techno Search Instruments, India Spectroquant Move 100, Merck, Germany Thermo reactor TR420, Merck, Germany TOC-Analyzer, Shimadzu Corporation, Japan UV-VIS Spectrophotometer, Shimadzu Corporation, Japan Vertical and Horizontal Gel electrophoresis, GeNei Laboratories Pvt. Ltd., India







### **INCUBATION SERVICES AND FACILITIES**

### **Incubation Support**

- Startup Incubation
- Laboratory (Workbenches & Equipment)
- Office Space & Common Infrastructure
- IP Services
- Mentorship and Trainings
- Sample testing & Analysis
- Consultancy

### **Office Space**

- Individual AC workspaces of 120 Sq. Ft
- Networking
- Conferencing & AV facility

### **Technical Services**

- Technology Mentoring
- Linkages for technology upscale
- Licensing of technologies

### **Laboratory Access**

- Dedicated Workbench
- Equipment Access 24\*7
- Centralized Air Conditioning

### **General Services**

- Legal & Finance
- Business Development support
- Business plan formulation
- Market Research Consultancy
- On demand Equipment access in BITS laboratories
- Access to Campus Infrastructure
- -Library, Mess, Medical & Shopping center

## Time and Venue July 9-13, 2019, 9.00 AM to 5.30 PM BITS BIRACBIONEST,

BITS, PilaniK.K.Birla Goa Campus Zuarinagar Goa 403726 Office: 0832-2580697 Lab: 0832-2580698

Mobile: 63691 35305, 92732 91115

https://www.bits-pilani.ac.in/Goa/BITSBIRAC/Home

### **Participants**: Students, Research Scholars, Faculty, Startup or Industry professionals

#### Fees\*:

Students, Research Scholars (Must Produce ID Card)Rs 3000 Faculty, StartupRs 4500 Individuals from IndustryRs 6500

### **Registration:**

Participants should submit the online registration form available at : <a href="www.bits-pilani.ac.in/Goa/BITSBIRAC/Home.">www.bits-pilani.ac.in/Goa/BITSBIRAC/Home.</a>
Due to limited seats, registration is on first come first serve basis.

### **Course Material & Certificate**

Each participant will receive relevant course material.

A Certificate of Participation will be provided on successful completion of the course.

### **Mode of Payment: E-Transfer**

Selected applicants should make payment through NEFT Transfer and send the transaction details to bionest@goa.bits-pilani.ac.in Account Name: BITS Pilani K.K. Birla Goa Campus Account No: 30803684122
Bank name: State Bank of India Branch Name: BITS Pilani Goa Centre Branch IFSC Code: SBIN0010720

\*Fees paid is not refundable and non-transferable under any circumstances