



BITS Pilani
K K Birla Goa Campus



B BITS BIRAC
BIONEST

Supported by BIRAC under BioNEST Scheme

Workshop
on DNA Binding and DNA Cleavage
Studies using Chemical Compounds

11th to 13th Oct 2019

About the workshop

DNA is the primary target of anticancer drugs, as interaction between small molecules and DNA cause damage to cancer cells. Compared to small organic compounds, metal complexes are more effective as DNA cleaving agents therefore metal complexes that can effectively bind and cleave DNA are of interest in the development of anticancer agents. We have designed this workshop to provide an insight on how to study DNA interaction using some metal based compounds. The participants will be taught how to design the experiments and carry out DNA interaction studies, and thereby determine the mode of binding, binding propensity, and cleaving ability of the tested compounds.

Lecture Topics:

- Metal complexes as DNA binding and DNA cleaving agents, suitable anticancer agents
- Techniques used to study DNA binding
- Agarose gel electrophoresis
- Oxidative cleavage of DNA
- Hydrolytic cleavage of DNA
- Kinetics of hydrolytic Cleavage

Experimental Sessions

DNA Binding study using CT-DNA

- Purity check of CT-DNA and finding its concentration
- DNA Binding studies using absorption spectroscopy
- Determination of mode of binding and intrinsic binding constant

DNA cleavage study using pUC19

- Preparation of reaction mixture according to experimental design
- DNA cleavage in absence of any external agent or light
- Chemical-induced DNA cleavage
- Quantification of bands to determine cleavage efficiency

Course Director

Dr. Manjuri Kumar
Assistant Professor
Department of Chemical Engineering

Dr. Manjuri, did her B.Tech and M.Tech from Calcutta University and PhD from BITS-Pilani (2004). Her current research area is design and synthesis of Copper and Zinc complexes with hard-soft donor ligands, DNA binding and DNA cleavage studies, protein interaction, cytotoxicity and evaluation of anticancer activity. Time-Lapse Live -Cell Imaging.

Participants:

- Students, Research Scholars, Faculty, Startup or Industry professionals

Students, Research Scholars (Must Produce ID Card)	Rs 2500
Faculty, Startup	Rs 3500
Individuals from Industry	Rs 4500

Registration:

Participants are required to register

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

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

Accommodation:

Limited number of hostel accommodation (chargeable) is available on first come first serve basis.

BITS BIRAC BioNEST

BITS BIRAC BioNEST focused in the area of Health and Environment, has a 3500 square feet (1500 sq. ft 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 Lab, Microbiology Lab, Biochemical Processing Lab, Physio-Chemical Analysis Lab, Sample Processing Lab, Bio safety Level II, Video Conferencing facility.

No. of Companies Incubated Currently: 06

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 all over India, admitted only on merit through the BITS AT examination. The institute alumni are located across the world in various are as of engineering, science and entrepreneurship. The institute symbolizes the maturing of Indian technical ability and "can-do" entrepreneurial spirit.

BIRAC

Bio technology 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 holdings schemes that help bring innovation excellence to the bio tech firms and 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.

BITS BIRAC BioNEST TEAM

PROJECT INVESTIGATOR & IN-CHARGE

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

TECHNICAL DIRECTORS

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

Sunil Bhand,
Professor-Dept. of Chemistry
Dean-Sponsored Research & Consultancy Division

SUPPORT

Vinobiah Balakrishnan, Manager
Sahita Desai, Senior Technician

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



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, America
- 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

Schedule

11th Oct to 13th Oct 2019

Time: 9.00 AM to 5.00 PM

Organized by

BITS BIRAC BioNEST

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Venue

BITS BIRAC BioNEST,

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>