

Ministry of Human Resource Development, Government of India



Global Initiative of Academic Networks (GIAN)

Concepts in Cancer Biology: Drug Discovery, Biochemical and Molecular Mechanism of Cancer Drugs, Clinical Implications

October 3-7, 2017



Area: Life Sciences & Healthcare

Host Institute

Guru Nanak Dev University
Grand Trunk Road, Off NH 1,
Amritsar
Punjab-143005
INDIA

<http://www.gndu.ac.in>



GURU NANAK DEV UNIVERSITY

Concepts in Cancer Biology: Drug Discovery, Biochemical and Molecular Mechanism of Cancer Drugs, Clinical Implications

(October 3-7, 2017)

3/10/2017:

- Overview of cancer, cancer terminology, pathology
- Cancer epidemiology and molecular epidemiology
- Role of bio-markers in causing cell cycle abnormalities

4/10/2017:

- Normal and abnormal signaling, role of cell cycle in relation to cancer
- Growth factors, programmed cell death, signaling pathways involved in cancer development
- Experimental design and procedures to determine regulatory signaling in cancer

5/10/2017:

- Nutrition and cancer
- Drug discovery from natural products, chemoprevention strategies
- Mouse mammary gland organ culture (MMOC) procedure

6/10/2017:

- Experimental carcinogenesis, chemoprevention
- Plants derived chemotherapeutic agents and their mechanism of action
- Chemotherapy, molecular mechanism of action of chemotherapeutic agents, personalized medicine, targeted therapy

7/10/2017:

- Invasion and metastasis, molecular approaches
- Open discussion for any of the problem solving issues occurring during the course of the lectures

Modules



Overview

The fundamental requirement for conducting any cancer research is to understand how cancer is initiated and how drugs are discovered. This includes how cancer is developed (carcinogenesis), how cancer preventive chemicals are discovered from plants and other natural products (chemoprevention and therapy) and how do they progress to become clinically relevant. Thus, the course will provide a global background on the entire wide field of cancer biology and research.

Objectives

- ❖ Provide understanding of how is a cancer cell different from normal cell.
- ❖ How do you discover a cancer preventive or therapeutic drug from plants (natural products) and how does one get approval of newly identified chemical for clinical testing?
- ❖ Enhancing understanding of the carcinogenesis and metastasis processes.
- ❖ Participants will be exposed to the field of cancer prevention and role of nutrition in cancer prevention.

You should attend if

The course will be appropriate for anyone who may be interested in carrying out cancer research, molecular biology and signaling pathway research or drug discovery, efficacy and approval of drugs by the Food and Drug Administration.

The group may include:

- ❖ Graduate students, Senior undergraduates
- ❖ Researchers and postdoctoral fellows
- ❖ Faculty members
- ❖ Medical practitioners (Medical oncologists, Radiation oncologists, Surgical oncologists and Pathologists)

Fees

Participants from abroad: US \$200
Industry/Research Organizations: Rs. 5000/-
Academic Institutions:
B.Sc. Students: Rs. 500/-
M.Sc. Students: Rs. 1000/-
Ph.D. Students: Rs. 1500/-
Faculty Members: Rs. 2000/-

The above fees include all instructional materials, computer use for tutorials, 24 h free internet facility. Outstation participants will be provided with single bedded accommodation on payment basis.



The Faculty

Prof. Rajendra G. Mehta is an internationally known researcher in the area of cancer chemoprevention, drug discovery and molecular mechanism of drug action. The major focus of research in his laboratory has been in the area of carcinogenesis and chemoprevention for the past 35 years. Over the years, his group has discovered several products as possible cancer preventive and therapeutic agents. In addition, he developed a procedure called mouse mammary gland organ culture model (MMOC) to screen newly identified (or synthesized) chemicals from plants for their cancer preventive properties. The National Cancer Institute (NCI, USA) is using this procedure for screening compounds. The overall concept of drug discovery is to focus on the efficacy determinations *in vitro* and *in vivo* as well as determining the molecular mechanisms of drug action. Once efficacy and toxicological profiles are determined, they are evaluated by the FDA for their approval of clinical trials. Dr. Mehta is actively involved in this process. He is also involved with clinical trials and serves as adviser to several Biotech companies. The focus has largely been on breast and colon cancers.



Prof. Saroj Arora is the faculty of Botany in the Department of Botanical and Environmental Sciences, Guru Nanak Dev University. Her research interest is in the area of environmental mutagenesis/ antimutagenesis/ anticarcinogenesis, genetic toxicology and natural plant products. Dr. Arora is recognized internationally for her insights into the bioprotective activities of plant based compounds with particular emphasis on antimutagenicity and anticancer research. She has developed and designed different techniques to unravel the scientific validation of number of medicinal plants used in Ayurveda.



**Course
Co-ordinator**

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About GNDU



Guru Nanak Dev University was established on Nov. 24, 1969 to commemorate the 500th birth anniversary of Shri Guru Nanak Dev Ji, the founder of Sikh religion. Guru Nanak Dev University is one of the premier universities of the country, which was two times accredited with the 5 star (the highest level) accreditation among the universities in India by National Assessment and Accreditation Council (NAAC), an autonomous institution of University Grants Commission. Recently, Guru Nanak Dev University has attained the highest status of University with Potential for Excellence (UPE) which is the highest status award by UGC.

The University has risen to 16th rank in the top 50 universities of the country, as per recent survey conducted by 'India Today' and has achieved 11th Position, out of the 500 universities, in Publications in science. In the field of Science and Technology our University is one of the leading institutions in North India. Our faculty members have bagged prestigious projects from the apex bodies like the DOT, CSIR, BARC and other organizations worth crores of rupees. Recently BARC has established a Nodal Calibration Centre at the campus. This is one of the four centres established all over the country. The University has purchased instruments worth 70 crore under different schemes.

In addition to academics, the University has the pride of winning the highest Inter-University National Sports Award of the country “Maulana Abdul Kalam Azad Trophy” (MAKA) for a record number of 22 times.



Some Glimpses of GNDU



You will find a lovely and friendly institution which offers high quality courses supported by excellent research facilities

About Department

The Department of Botanical and Environmental Sciences came into existence in 1990. The department is recognized by Department of Science & Technology (DST), Govt. of India under DST-FIST and University Grants Commission (UGC), New Delhi under DRS-SAP programme.

The research activities of the department focus on the thrust areas of Botany (Antigenotoxicity, Plant Tissue Culture, Plant Physiology, Biodiversity, Natural Plant Products, Vermitechnology, Plant Databases etc.) and Environmental Sciences (Water, Air & Soil Monitoring, Environmental Engineering, Solid Waste Management, Biological Wastewater Treatment, Computer Applications in Ecology etc.). The faculty of the department runs research projects funded by UGC, CSIR, DBT, DST and ICMR. Several faculty members have exposure to foreign research laboratories like USA, UK under Fulbright Fellowship, Newton-Bhabha Fellowship etc.

The Department has a Herbarium, Botanical Garden, Green House, Vermitechnology Unit and in house Computer Laboratory. The department has well equipped labs and facilities to carry out research in the advanced frontiers of Botany and Environmental Sciences.

So far, more than 75 doctorate degrees were awarded by the department and at present 60 full time Research Scholars are pursuing their Ph.D. degree. Majority of the Ph.D. scholars are getting external fellowship under UGC-Basic Scientific Research, UGC-Rajiv Gandhi National Fellowship, UGC-Maulana Azad National Fellowship and DST-INSPIRE in the department.



GNDU Botanical Garden is a member of Botanic Gardens Conservation International, Richmond, Surrey, UK.

Registration Process

Web registration:

1. For attending the course, participants will have to register in the GIAN registration portal (<http://www.gian.iitkgp.ac.in/GREGN/index>) before applying.
2. Registration to the portal is one time affair and will be valid for lifetime of GIAN. Create login User ID and Password. Fill up registration details and complete the registration by paying Rs. 500/- online through Net Banking/ Debit/Credit card.

Course registration:

3. After registration the participants should select the course “**Concepts in Cancer Biology: Drug Discovery, Biochemical and Molecular Mechanism of Cancer Drugs, Clinical Implications**”. Confirm your registration by clicking on Confirm Course.
4. Course Coordinator will select the participants and will inform the selected participants via mail.
5. Then the selected participants will have to fill the registration form as follows:

Registration cum Accommodation Request Form

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October 3-7, 2017

Department of Botanical and Environmental Sciences, Guru Nanak Dev University, Amritsar

Name (Block Letters):M/F.....

Designation/Professional Title:

Organization:

Address:

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Tel: Mobile:

Email:

Accommodation Required (Yes/No):

The Registration fee of Rupees has been paid via Demand Draft No..... in favour of **The Registrar, Guru Nanak Dev University, Amritsar** through online/offline banking bearing Transaction No. to Punjab & Sind Bank, Guru Nanak Dev University Campus (RTGS/IFSC code **PSIB0000288**) A/C No. **02881000007953** of Guru Nanak Dev University. Demand Draft/Fee Receipt has been enclosed herewith.

Date:

Signature: