Cancer Genomics and Diagnostics

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Overview

Cancer is the second most common disease in India causing about 0.3 million deaths per year. WHO suggests that cancer can be reduced and controlled by implementing evidence-based strategies for cancer prevention. Early detection (diagnosis and screening) measures need to be technologically developed in terms of precision, cost-effectiveness, and availability to all the corners of world. Cancer Genomics tools have potentials to greatly impact in the fields of oncology, ranging from drug discovery to therapeutics and diagnostics. The recent developments in genomic and proteomic analyses, sequencing and transcriptomics, have accelerated the growth of knowledge and scientific discovery in cancer diagnostics and therapy. The combination of cancer genomic data with the functional screening tools could explore the unveiled facts and figures in cancer signaling and drug targets for intervention. This translational approach can be used to identify and classify tumors from healthy tissue and differentiate between various cancer types. Cancer genomic studies have revealed the abnormalities in genes driving carcinogenic developments, which led to improved understanding of the biology of cancer and helped in devising newer methods of disease diagnosing and treatment. This technology is at high demand which may lead to early detection of tumors followed by impact treatment options and outcomes. Cancer genomics applications through research laboratories to clinics can be used in improving early diagnosis, tracking disease progression, identifying patient responders and evaluation of therapeutic efficacy. The expansion and application of next-generation sequencing (NGS) technology has driven a revolution in cancer genomics. The NGS and microarray technologies are among the high rated methodologies delivering high-throughput cancer screening, diagnostics and mitigating therapy. Thus, Cancer genomics field has created a dramatic shift toward demand for personalized tumor diagnostics in routine settings. Now patients may receive individualized therapy based on their tumor genetic tumor profile.

A GIAN program in “Cancer Genomics and Diagnostics” at Dr. Harisingh Gour University, Sagar would be a leading program for sharing of “knowledge and technology” from foreign experts to Indian researchers; especially for researchers in the area of cancer genomics, aspiring to lead in diagnostics and therapeutics. The invited foreign faculty (Prof. Hyun Goo Woo, Ajou University, South Korea) is well known for his expertise in cancer genomics, pharmacogenomics, translational bioinformatics, precision medicine, liver cancer. Organization of MHRD-GIAN program at remotely located, yet well-equipped, Sagar University would be of great importance to the researchers in the area and to draw new lines in cancer research. The program may also lead to develop new networks and consortium between the two nations by bridging scientific developments, exchanging academic support, and providing better opportunities in human health.

The program will be organized in two modules: module ‘A’ tutorials followed by module ‘B’ demonstration of research work. Course participants will learn theoretical and technical aspects of cancer research. Participants will also take part with assignments, demonstrations, and skill development sessions for motivation in cancer research.

A: Tutorials : September 24-29, 2018
B: Demonstrations : September 24-29, 2018

- Academic students at U.G., P.G. and Ph.D. levels and postdoctoral fellows with special interest in cancer biology research.
- Faculty members working in the area of modern biology with special interest in cancer research.
- Industry members with special interest in developing diagnostics, for disease management, and drug development.

The participation fees for taking the course is as follows:

Participants from abroad	**:**	**US$ 200**
Students (U.G. and P.G.)	**:**	**INR 800***
Ph.D. and Postdoctoral Scholars	**:**	**INR 1500***
Faculty from academia	**:**	**INR 2000**
Industry Participants	**:**	**INR 5000**

* Fee for SC/ST Candidates : 50% waived off.

The above fee includes all instructional materials and working lunch.

The participants may be provided with accommodation on payment basis.

The Faculty

Prof. Hyun Goo Woo is the faculty of System Medicine at Ajou University School of Medicine, Suwon, South Korea. His research interests include cancer genomics, pharmacogenomics, translational bioinformatics, precision medicine, and liver cancer. His recent research highlights include integrative genomic data analysis using high-throughput sequencing and array-based genomic data, for identifying key drivers and signaling mechanisms responsible for heterogeneous cancer progression. He is also interested in developing bioinformatic platforms to analyze pharmaco-genomic data, which might be useful as a preclinical testbed to identify new biomarkers for early diagnosis and actionable molecular targets for precision medicine.

Dr. Siddhartha Mishra is the faculty of Biological Sciences at Dr. Harisingh Gour Central University, Sagar, India. His research interest is molecular and cellular biology of disease and cancer biology. His recent research highlights include targeting novel cellular signaling pathways in carcinogenesis, natural products in cancer prevention, modulation of cancer cell growth and motility, cancer genomics and epidemiology. His research areas are extending towards nano-pharmacology, genomics and diagnostics. He has earlier coordinated a MHRD-GIAN program in cancer biology.

Course Coordinator

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