SUN PHARMA SCIENCE FOUNDATION Training Workshop

Understanding Complex Human Diseases: Epidemiological & Genomic Approaches and Methods

Duration: August 28 to September 1, 2024 (Five days)

Venue: Auditorium of *Jagadis Bose National Science Talent Search*

1300 Rajdanga Main Road (near Ruby Hospital), Kolkata - 700 107, West Bengal

Organized by: *John C. Martin Center for Liver Research & Innovations, Kolkata*

This Workshop is being organized in recognition of the need to expand research in India on human diseases enabling the identification of important risk factors and interactions among them, and to estimate risks attributable to these factors. The training workshop aims to help the participant acquire skills to design a study using appropriate statistical considerations and methods; and to perform statistical analyses and draw inferences from relevant data, with special emphasis on estimating genomic risks and associations including their interactions with environmental risks. Classroom format – primarily lectures and computer exercises – will be followed. There will be some Special Lectures on contemporary issues of general interest.

Topics

- What is a complex disease? • Why are complex diseases common? • Framework for the dissection of aetiology of a complex disease. • Retrospective and Prospective study designs.
- Ethical considerations in human disease research. • Basic probability and statistics.
- Concepts and estimation of epidemiological parameters. • Risks: Genetic and Environmental.
- Methods of generation of genomic data: DNA microarrays, Whole-Exome Sequencing, Whole-Genome Sequencing. • Summarization and quality control of genomic data. • Tests of association of putative risk factors associated with a complex disease and estimation of sizes of risk-effects.
- Multiple-testing and false-discovery rate. • Polygenic risk score: Concept and estimation.
- Fundamentals of gene-environment interaction and detection of interaction.

Who can apply?

An applicant must be engaged in research on human disease. An applicant may be a junior employee of an industry holding a PhD degree or a young medical professional in a medical college or a junior faculty-member with a PhD degree of an academic institution, or a research fellow formally associated with a PhD programme of an academic institution.

Other relevant information

There is no course fee. The total number of participants is restricted to 50. Selection will be made on the basis of academic attainments and interests. Preference will be given to applicants with working knowledge of Linux and R programming language. Each selected participant must bring a laptop to the Workshop. Selected participants must make their own travel and board & lodging arrangement. Lunch, tea/coffee will be provided during the Workshop. Participants are expected to attend all five days of the Workshop.

How to apply?

Applicants may apply by sending a MS-Word document listing the following information: Name of Applicant, Age (in completed years), Sex, Present position and institutional affiliation, Whether possesses working knowledge of Linux and R, Brief description of engagement with human disease research, Motivation to participate, List of key research publications (if any). The document may not exceed two pages. It must be sent as an attachment to spsfworkshop@gmail.com

- The last date for submitting applications is: July 15, 2024.
- Applicants will be notified of selection by: July 29, 2024.