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A Comprehensive Proteomics Investigation to Decipher Brain Proteome Map and Mechanistic Studies on Brain Tumors

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Date : 29 December 2022 (Thursday)

Time : 10:00am - 11:30am

Venue: 1B-G04, G/F, Block 1, To Yuen Building

Abstract

The human brain is the most complex organ and nexus of the central nervous system, responsible for various synaptic connections between these cell types that contribute to the definition of neuroanatomical subdivisions in the adult human brain. The loss of functionality and anatomical disability of the brain due to the occurrence of brain tumors and neurodegenerative diseases, the most chronic physiological ailments, have always been the major focus of neurobiology research.

Despite huge interest in this field and the availability of humongous data, there is still a lack of an omics-driven brain and its associated disease-based knowledge base. We are trying to bridge the gap by performing deep proteomics investigatons and developing a user-friendly knowledgebase BrainProt™ (https://www.brainprot.org/) that integrates the basal level protein expression and phosphoprotein signatures of different regions and sub-regions of healthy human brain hemispheres for the very first time. Further, we used proteomics to decipher and understand the molecular alteration in Meningioma, the most common primary brain tumour; gliomas and pituitary tumors. Protein markers and integrated proteomics-transcriptomics analysis led to the identification of several crucial altered biological pathways. In this presentation I will discuss few basic concepts of proteomics & our recent research on comprehensive proteomics investigation to decipher Brain proteome map and mechanistic studies on brain tumors.

Biography

Sanjeeva Srivastava obtained his Ph.D. from University of Alberta (2006), post-doc from Harvard Medical School (2009) and joined Indian Institute of Technology (IIT) Bombay in 2009. He is currently working as a full Professor at IIT Bombay and Visiting Professor at University of California, San Francisco, USA. He has established one of the best, state-of-the-art proteomics facility in India, which is equipped with advanced mass spectrometers, microarrays & SPR set-up.

His research on protein biomarkers of infectious diseases and brain tumors has resulted into 150+ publications, 3 books & over 20 patents filed, including Nature and Cell press publications. He has been awarded many national and international awards, including Young Scientist Footstep Awards Canada, Martha Piper Award for Communications Excellence, Apple Research Technology Support (ARTS) award UK, Young Scientist Award from Department of Atomic Energy & Department of Science Technology India, IIT Bombay's Young Faculty Award and Prof. S. P. Sukhatme Excellence in Teaching Award.

He is fellow of the Royal Society of Biology, Royal Society of Chemistry and Royal Society of Medicine. He has worked as a visiting professor in Nottingham Trent University UK, Arizona State University USA, Central South University China and Asian University Alliance Scholar. He initiated Cancer Moonshot India program to accelerate cancer proteogenomics research and India became part of International Cancer Proteogenome Consortium (ICPC). He has taught MOOC courses on Proteomics and Proteogenomics to over 25,000 students globally and plays major role in proteomics education, training and outreach. He is leading proteomics education and training programs in India and also serves on the Council of Human Proteome Organization (HUPO), executive committee member of Biology-Disease driven human proteome project (B/D-HPP), Cancer Human Proteome Project (Ca-HPP) and emerged as a leader and catalyst of proteomics research and education globally.

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All are welcome!