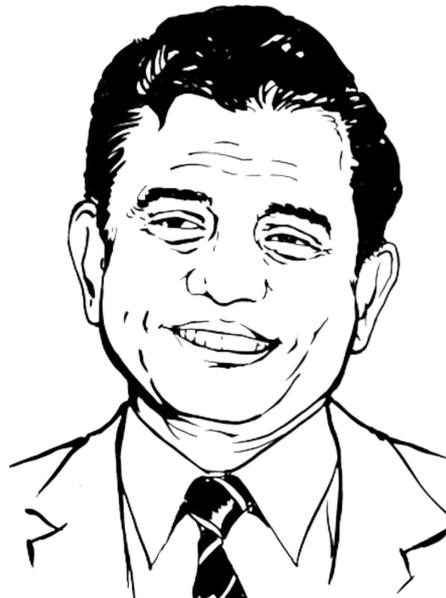




Centre for DNA Fingerprinting & Diagnostics (CDFD), Hyderabad
(An autonomous institute of the Department of Biotechnology, Ministry of Science & Technology, Govt. of India)

Invites you for

Dr. Lalji Singh Memorial Lecture
on 5 July 2022; at 4.00 pm (Hybrid mode)



Programme

4.00 – 4.05 pm

Welcome address

K. Thangaraj, Director, CDFD

4.05 – 4.10 pm

Introduction of the speaker

Varsha, Staff Scientist, CDFD

4.10 – 5.00 pm

Dr Lalji Singh Memorial Lecture

Subramaniam Ganesh

*Professor, Department of Biological Sciences
and Bioengineering, IIT Kanpur*

**Title: Glycogen and neuronal health:
Lessons from a rare genetic disorder**

Online Link : <https://meet.goto.com/152945173>



Subramaniam Ganesh

Professor

Department of Biological Sciences and Bioengineering
Indian Institute of Technology, Kanpur

Dr. Subramaniam Ganesh received his Bachelor's and Master's degree in science from the University of Madras, and his Ph.D. in 1996 from Banaras Hindu University in the field of Molecular Genetics. Subsequently, he joined the RIKEN Brain Science Institute in Japan as a staff scientist.

Dr. Ganesh joined the faculty of the Indian Institute of Technology Kanpur in early 2002 and played a major role in establishing the academic and research programs of the new Department of Biological Sciences and Bioengineering. He also served as the Chair of the Department from 2013 to 2016. Dr. Ganesh is a Senior Professor and the current Deputy Director of the Institute. Earlier, as the Dean of Research & Development, Dr. Ganesh played a significant role in expanding the Biotech and MedTech innovation and R&D programs of the Institute. Currently he is heading the taskforce to set-up a medical school on the campus of the Institute. Dr. Ganesh is known for his contributions in dissecting genetic pathways of neurodegeneration and his attempts in therapeutic interventions for neurodegenerative disorders. Dr. Ganesh is an elected Fellow of the National Academy of Sciences, India and the Indian Academy of Sciences. Dr. Ganesh was also a recipient of the Ramanna Fellowship of the Department of Science and Technology, Tata Innovation Fellowship of the Department of Biotechnology and the JC Bose Fellowship of the Department of Science and Technology.

Abstract

Glycogen and neuronal health: Lessons from a rare genetic disorder

Studies on rare genetic disorders have often resulted in the discovery of novel cellular pathways and useful insights into how abnormalities in these pathways lead to the disease phenotype. The process of mitophagy (Parkinson disease), protein aggregation and its transmission (Creutzfeldt-Jakob disease), post-transcriptional gene regulation, and stress granules formation (amyotrophic lateral sclerosis) are a few examples of such discoveries. Another example in this growing list is Lafora disease, a fatal neurological condition that affects teenagers and is caused by mutations in the genes coding for laforin protein phosphatase or malin E3 ubiquitin ligase. In the last two decades, researchers have discovered a plethora of activities for these two proteins, as well as how changes in these processes lead to neurodegeneration. The excessive build-up of glycogen in neurons and other tissues is a distinctive pathology of Lafora illness. These inclusions, known as Lafora bodies, are an abnormal form of glycogen that is less branched and insoluble in water. While neurons do not normally store a large amount of glycogen, studies have demonstrated that they do have the machinery to synthesise it. Laforin and malin, two proteins deficient in Lafora disease, prevent glycogen accumulation in neurons. Thus, functional loss of laforin or malin results in the neurodegeneration. Conversely, conditional knockout of glycogen synthase in the neurons enhances life span and improves neurological functions in animals. In this talk, using the observations from the animal models of rare disorders, I would discuss the neuron-specific functions of the glycogen and how the glycogen synthesis process may protect or kill neurons.