

Life Science across the Globe' seminar series: Discovery biology of neuropsychiatric syndromes

The 'Life Science across the Globe (LSAG)' seminar, is a weekly online seminar series that represents the partnership among eight sister institutes from five continents: North America, South America, Europe, Africa, and Asia. In this week's LSAG seminar was held on December 02, 2020, Scientists from DBT's Institute of Stem Cell Science and Regenerative Medicine (inStem), Bengaluru, spoke on the "*Discovery biology of neuropsychiatric syndromes*". The talks showcased the ongoing efforts of the Accelerator programme for Discovery in Brain disorders using Stem cells (ADBS). The ADBS programs supported by the Department of Biotechnology, Government of India under the Indo-Japan collaborative program to enhance the use of modern stem cell technology to find solutions for human diseases in India. The key organizations closely working under the ADBS canopy are Bengaluru based National Centre for Biological Sciences (NCBS) - Tata Institute of Fundamental Research (TIFR), DBT-inStem, and National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru.



The poster features a central world map with orange human figures standing on it. Labels on the map include: LMB Cambridge, EMBL, CSHL Janelia, U. Buenos Aires / CONICET, NCBS Bangalore, and IDM-Cape Town. The text "Life Science Across the Globe" is prominently displayed in yellow and white, with "a sister institute seminar series" below it. The event details are listed in a dark blue box: "December 2 | National Centre for Biological Sciences (NCBS)". It features three speakers: Raghu Padinjat (Science talk: "Discovery biology of Neuropsychiatric syndromes"), Bhavana Muralidharan (Group Leader, inStem), and Venkat Srinivasan (Culture talk: "Archives as crucible, archives as commons: Re-thinking an archive for the sciences", Archivist, NCBS). The event is on Wednesday at 7pm IST. Contact information includes #GlobalLifeSci, www.lifescienceacrosstheglobe.org, Zoom ID: 958 5951 7201, and Passcode: 489171. Logos for partner institutions like hhmi, janelia, CSH, Cold Spring Harbor Laboratory, IDM, EMBL, UBA, CONICET, MRC, and NCBS are shown at the bottom.

SCIENCE is a GLOBAL EFFORT

OPEN to EVERYONE!

Life Science Across the Globe
a sister institute seminar series

December 2 | National Centre for Biological Sciences (NCBS)

Science talk
"Discovery biology of Neuropsychiatric syndromes"

Raghu Padinjat
Professor, NCBS

Bhavana Muralidharan
Group Leader, inStem

Venkat Srinivasan
Archivist, NCBS

Culture talk
"Archives as crucible, archives as commons: Re-thinking an archive for the sciences"

Wednesday at 7pm IST

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hhmi | janelia | CSH | Cold Spring Harbor Laboratory | IDM | EMBL | UBA | CONICET | MRC | NCBS

Prof. Raghu Padinjat has presented the goal of the ADBS program, which is to develop an understanding of the genetic and cellular basis of severe mental illnesses (SMI) like

schizophrenia, bipolar disorder, obsessive compulsive disorder, substance dependence and dementia, all of which are known to have a strong heritable basis. However, despite their high heritability, to date few genetic correlates that could account for this high heritability have been identified. In collaboration with the Department of Psychiatry, NIMHANS, Bengaluru, inStem and National Centre for Biological Sciences (NCBS), Bengaluru, have assembled a prospective cohort of 250 families with a strong family history of SMI.

Dr. Muralidharan, working on Brain Development and Disease Mechanisms (BDDM) theme at inStem with an interest in understanding the molecular mechanisms that regulate the development of the cerebral cortex in health and disease. The cerebral cortex is the seat of sensory perception, decision-making, language, motor control, learning and memory. She spoke about the role of dynamic chromatin regulation in stem cells as a fundamental determinant of the emerging properties of functional neural networks; mutations in some elements of the very same networks are implicated in neuro-developmental disorders.

Speaker highlighted divergent species-specific developmental mechanisms unique to humans compared to other mammals. Thus, to discover altered cortical developmental mechanisms that may underlie human brain disorders, human-induced pluripotent stem cells (HiPSCs) derived from such patients are a very valuable research model since they capture the patient's complete genetic blueprint. She delineated her lab's interests in understanding molecular and cellular basis of schizophrenia and defined how the ADBS program resources are a huge asset for her own research program to understand the epigenetic regulation of gene expression in schizophrenia. Given her lab's interest and expertise in understanding epigenetic mechanisms of cortical development, she also mentioned that 3D organoid cultures derived from these patients and control lines will be utilised to study underlying altered neural development phenotypes in a dish.

The key highlight of this sister seminar's talk was to showcase the unique ADBS program which offers a valuable resource platform to identify human-specific genetic and epigenetic causes leading to affected cellular outcomes in patients with mental illnesses. The session had participants from across the globe and institute LIVE tweeted about the same.

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