

One day National webinar  
"IgLON family proteins-role in Neuronal Development"



**Mahajana Education Society (R.)**

Education to Excel

**SBRR Mahajana First Grade College (Autonomous)**

Jayalakshmipuram, Mysuru - 570 012

Affiliated to University of Mysore & Accredited with 'A' Grade by NAAC  
College with Potential for Excellence

An IQAC Initiative

**Department of Biochemistry**

organises a

**National Webinar**

on

**"IgLON family proteins -  
role in Neuronal Development"**

**Resource Person:**

**Dr. Mohan Jayaram, Ph.D (Genetics)**

Research Fellow in Human Physiology

Department of Physiology

Institute of Biomedicine & Translational Medicine,

University of Tartu, Tartu - 50411, Estonia

**Date: 29.11.2022**

**Time: 11.30 AM**

**Venue : AVC-III**

**All are Cordially Invited**

*HoD & Staff*

Dept. of Biochemistry

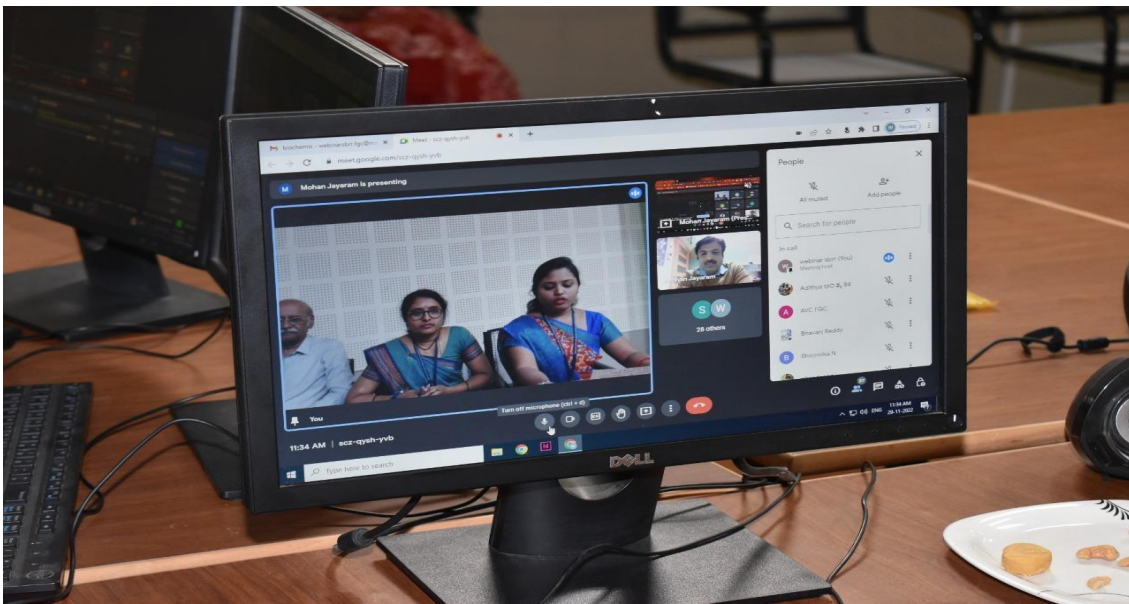
*Dr. S R Ramesh*

CEO & Academic Advisor

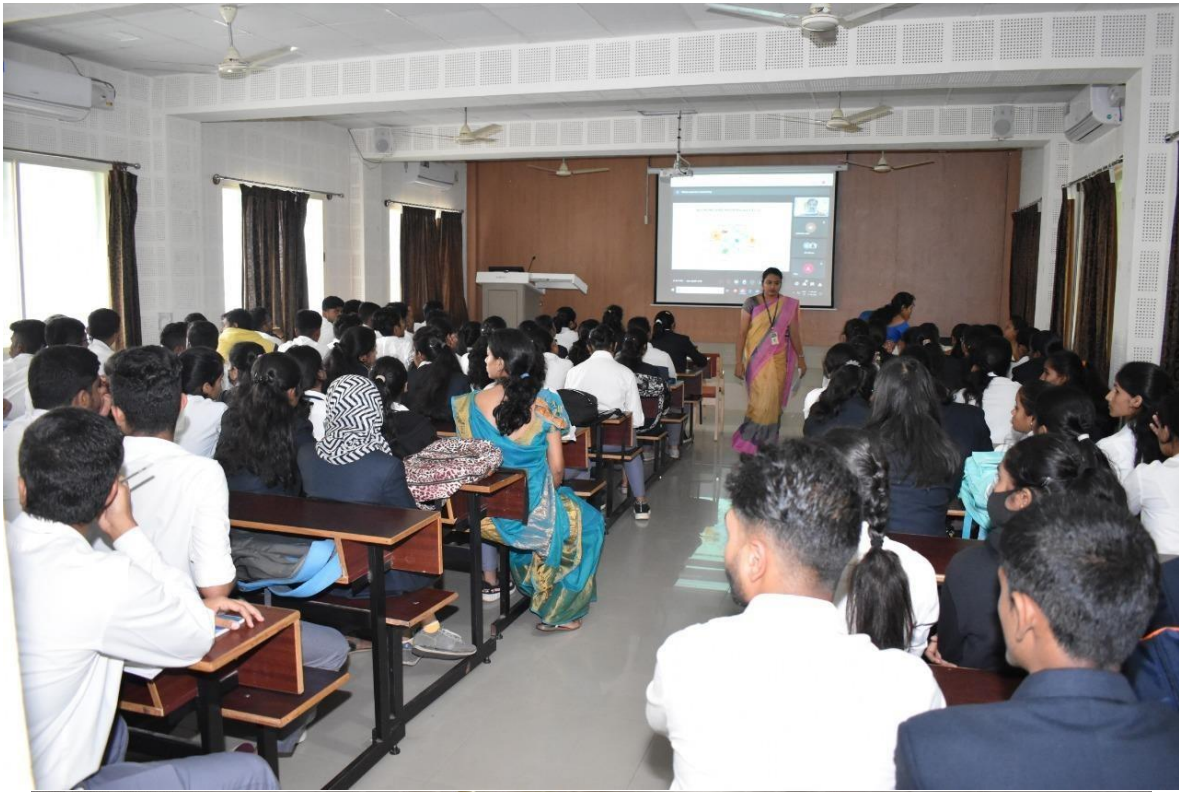
*Dr. B.R. Jayakumari*

Principal

One day National webinar  
“IgLON family proteins-role in Neuronal Development”











# ಕನ್ನಡಪ್ರಭ

ನೇರ. ದಿಟ್ಟ. ನಿರಂತರ

## ಇಗ್ಲೋನ್ ಫ್ಯಾಮಿಲಿ ಪ್ರೊಟೀನ್‌ಗಳು ಕುರಿತು ವೆಬಿನಾರ್



### • ಕನ್ನಡಪ್ರಭ ನಾರ್ತ್ ಮೈಸೂರು

ನಗರದ ಎಸ್‌ಬಿಆರ್‌ಆರ್ ಮಹಾಜನ ಪ್ರಥಮ ದರ್ಜೆ ಕಾಲೇಜಿನ ಜೈವಿಕ ರಸಾಯನಶಾಸ್ತ್ರ ವಿಭಾಗ ಮತ್ತು ಐಕ್ಯೋ ಎಸ್ ಸಹಯೋಗದಲ್ಲಿ ಇಗ್ಲೋನ್ ಫ್ಯಾಮಿಲಿ ಪ್ರೊಟೀನ್‌ಗಳು - ನರಕೋಶದ ಬೆಳವಣಿಗೆಯಲ್ಲಿ ಪಾತ್ರ ಕುರಿತು ರಾಷ್ಟ್ರೀಯ ಮಟ್ಟದ ವೆಬಿನಾರ್



ಆಯೋಜಿಸಲಾಗಿತ್ತು. ಈ ವೇಳೆ ಇಕ್ಲೋನಿಯಾದ ಟರಾಟಾ ವಿಕ್ರಮ್‌ದ್ವಾರಾ ಸಂಶೋಧನಾ ಸಹೋದ್ಯೋಗಿ ಡಾ.

ಮೋಹನ್ ಜಯರಾಮ್ ಅವರು, ಮೆದುಳಿನ ರಚನಾತ್ಮಕ ಮತ್ತು ಕ್ರಿಯಾತ್ಮಕ ಸಂಕೀರ್ಣತೆಯನ್ನು ವಿವರಿಸಿದರು. ಮೆದುಳಿನ ಸಂಘಟನೆಯಲ್ಲಿ ನ್ಯೂರಿಟೋಜಿನಿಸಿಸ್ ಪ್ರಮುಖ ಹಂತಗಳಲ್ಲಿ ಒಂದಾಗಿದೆ. ಇದಕ್ಕಾಗಿ ಇಗ್ಲೋನ್ ಕುಟುಂಬದ ಪ್ರೊಟೀನ್‌ಗಳು ಮತ್ತು ನೆಗ್-1 ಜೀನ್‌ಗಳು ಪ್ರಮುಖ ಪಾತ್ರ ನಿರ್ವಹಿಸುತ್ತವೆ ಎಂದು ಹೇಳಿದರು.

ಇಗ್ಲೋನ್ ಪ್ರೊಟೀನ್‌ಗಳ ಕಾರ್ಯಚಟುವಟಿಕೆಯಲ್ಲಿನ ಯಾವುದೇ ದುರ್ಬಲತೆ ಮತ್ತು ನೆಗ್-1 ಜೀನ್‌ನ ಅಳಿರುವಿಕೆ ಮೆದುಳಿನ ಸಂಘಟನೆಯನ್ನು ನಾಶಪಡಿಸುತ್ತದೆ. ಇದು ಕ್ರಮೇಣ ಹಲವಾರು ಪ್ರಮುಖ ನರಮಾನಸಿಕ ಅಸ್ವಸ್ಥತೆಗಳಿಗೆ ಕಾರಣವಾಗುತ್ತದೆ. ಇದರಿಂದ ಇಗ್ಲೋನ್‌ಗಳು ಮನೋವೈದ್ಯಕೀಯ ಅಸ್ವಸ್ಥತೆಯನ್ನು ಅರ್ಥಮಾಡಿಕೊಳ್ಳಲು ಉತ್ತಮ ಮೂಲವೆಂದು.

ಕಾಲೇಜಿನ ಪ್ರಾಂಶುಪಾಲ ಡಾ.ಬಿ.ಆರ್. ಜಯಕುಮಾರಿ, ಸಿಬಿಒ ಡಾ.ಎಸ್.ಆರ್. ರಮೇಶ್, ಜೈವಿಕ ರಸಾಯನಶಾಸ್ತ್ರ ವಿಭಾಗದ ಮುಖ್ಯಸ್ಥ ವಿ. ರಮ್ಯ, ಸಹಾಯಕ ಪ್ರಾಧ್ಯಾಪಕ ಪಿ. ರಾಧಿಕ ಇದ್ದರು.

12:16 81% 4G+

← scz-qysh-yvb ↻ 🔊

### Advantages of Mouse as a model

- (1) mice are available in many different inbred strains
- (2) the mouse genome sequence is almost complete
- (3) mutagenesis can isolate new mutations
- (4) mice can be genetically manipulated in ways not possible in other species
- (5) Whole and tissue specific knock in and knock outs can be generated.

C57BL/6J from The Jackson Laboratory

129SvEvTac from Taconic Biosciences




X




Mohan is presenting

D

Deepthi



Mohan



You

W

WEBINAR 65 others

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29.11.2022

## **A Report on**

### **ONE DAY NATIONAL WEBINAR ON**

### **“IgLON family proteins-role in neuronal development”**

The Department of BtBM and IQAC organized One Day National webinar on the topic “**IgLON family proteins-role in neuronal development**” on 29<sup>th</sup> November 2022 at AVC-II, SBRR Mahajana First Grade College (A), Jayalakshmpuram, Mysuru.

The resource person Dr. Mohan Jayaram, Ph.D (Genetics) Research fellow in Human Physiology, Department of Physiology, Institute of Biomedicine & Translation Medicine, University of Tartu, Tartu-50411, Estonia.

The speaker started the session by briefing the structural and functional complexity of brain. He addressed about the organisation of brain and emphasized that neuritogenesis is one of the major step in brain organisation for which IgLON family proteins and Negrl gene are the key regulatory components.

A brief introduction of IgLON family proteins was given as - IgLONs are members of the immunoglobulin (Ig) superfamily of cell adhesion molecules and are the most abundant glycosylphosphatidylinositol-anchored proteins expressed in neurons. They serve as substrate for metallo-proteinases. The IgLON proteins contain three immunoglobulin domains followed by a glycosylphosphatidylinositol anchor protein and possess 6–7 potential glycosylation sites. IgLON family members include neurotrimin (NTM), opioid-binding cell adhesion molecule (OBCAM), limbic system-associated membrane protein (LSAMP), and neuronal growth regulator 1 (NEGR1). IgLON proteins form homophilic and heterophilic complexes along the cell surface and with juxtaposed cells to modulate adhesion and neurite outgrowth. Individual IgLON family members can promote or inhibit growth of different types of neurons in part dependent on the complement of IgLON surface expression. IgLONs may also play a role in the formation and maintenance of excitatory synapses.



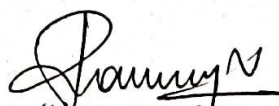
Speaker explained that any impairment in the functionality of IgLON proteins and deletion of Negrl gene will destroy brain organisation leading to major neuropsychiatric disorder (PDS) like Autism, Schizophrenia etc., These neuropsychiatric disorders are characterised by high irritability and they share common genetic etiology with diverse set of overlapping symptoms. Risk factors associated with these neuropsychiatric disorders are genetic predisposition, developmental insult, brain injury, ageing or environmental factors.

Further on in his discussion he also placed some unresolved questions with this respect like genetic variants impairs brain dysfunction and pathology underlying specific symptoms. He also gave insights into his research study pattern and experimental work done using mince as the model for behavioural study. The neuroanatomical distribution of two IgLON members, Lsamp and Ntm, is highly heterogeneous throughout the brain, and it has been proposed that they are expressed by distinct complementary subpopulations of neurons with co-expression at a few sites. The brain areas expressing both Lsamp and Ntm include sensory and sensory-motor cortex, entorhinal cortex, hippocampus, amygdala, thalamus (ventral Posteromedial, lateral geniculate nucleus and lateral dorsal nuclei), pyriform cortex, Cerebellum, brain stem nuclei, spinal cord and dorsal root ganglia. In cultured hippocampal neurons, the co-expression of LsampAndNtm has been shown at the level of single neurons.


The key take home of session is IgLONs are the good model to understand psychiatric disorders. Negrl knock out mice shows most of the endopheno types in human PDS. Stress & pharmacological intervention can give us more knowledge of PDS. Finally, speaker concluded the talk saying that mental health is equally important as physical health. After the talk the session was open for discussion. During which students actively interacted asking questions.

In the graceful presence of respected Principal Dr. B R Jayakumari, and CEO, Dr. S R Ramesh, welcome note was given by Smt. P Radhika, Assistant Professor, Department of Biochemistry. Introduction of Resource person was given by Smt. Ramya V, HoD, Department of Biochemistry. The entire programme was hosted by Smt. P Radhika, Assistant Professor, Department of Biochemistry.

The guest expressed his gratitude for giving an opportunity to deliver a lecture and for organising this programme. Finally, the programme was winded up by rendering vote of thanks by faculty Smt P Radhika.

  
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