

Vigyan Yuva, Rashtriya Vigyan Puraskar, 2024



Aravind Penmatsa
Senior Fellow, 2022
IISc, Bengaluru

Aravind Penmatsa was awarded the Vigyan Yuva-Shanti Swarup Bhatnagar Award 2024 in Biological Sciences, for his research on molecular machines that control the transport and release of neurotransmitters in neurons. The findings from his work offer a detailed understanding of the molecular architecture and the mechanisms by which drugs inhibit transport or channel function.

Research Brief:

Studies led by Dr Penmatsa have deepened our understanding of transport machinery across various cellular environments and provided valuable insights for developing targeted treatments for pain, seizures, as well as in a connected avenue of research, antimicrobial resistance. The team has made significant progress in understanding pannexin channels, which release ATP from cells and are targets of anti-inflammatory medication.

[Link to the announcement.](#)



Radhakrishnan Mahalakshmi
Senior Fellow, 2020
IISER, Bhopal

Radhakrishnan Mahalakshmi was awarded the Vigyan Yuva-Shanti Swarup Bhatnagar Award 2024 in Biological Sciences for her work bringing fundamental insights to mitochondrial membrane protein biophysics, in health and diseases in the country. This has implications for peptide-based therapeutics for disease alleviation.

Research Brief:

Dr. Mahalakshmi's team has been developing state-of-the-art techniques and novel experimental approaches to understand how proteins involved in the transport and organization of proteins and metabolites across mitochondrial membranes function. Her work has addressed how the dysregulation of these proteins under adverse cellular conditions can trigger extreme disease states, including various cancers, or even lead to neurodegenerative disorders including Parkinson's disease, Alzheimer's disease, and amyotrophic lateral sclerosis.

[Link to the announcement.](#)

Members, EMBO Global Investigator Network, 2024



Bhavana Muralidharan
Intermediate Fellow, 2019
BRIC-InSTEM, Bengaluru

Bhavana Muralidharan is one of five members from India selected to the 2024 EMBO Global Investigator Network for her work on: Dissecting molecular mechanisms of neurodevelopmental chromatinopathies.

Research Brief:

Bhavana Muralidharan was an Early Career Fellow at TIFR Mumbai and subsequently awarded an Intermediate Fellowship, as she established her independent laboratory at BRIC-inStem in Bengaluru.

Her laboratory has contributed to the understanding of molecular mechanisms of human neurogenesis (Channakkar et al., 2024) as well as disrupted neurodevelopmental trajectories in cerebral organoids derived from bipolar disorder patients (Phalnikar et al., 2024). With these interdisciplinary pursuits, her lab's integrative studies hold great promise for advancing the understanding of human-specific neurodevelopmental processes and the pathological mechanisms underlying neurodevelopmental disorders.

[Link to the announcement.](#)



Rajender Motiani
Intermediate Fellow, 2019,
RCB, Faridabad

Dr. Rajender Motiani is one of five members from India selected to the 2024 EMBO Global Investigator Network for his work on: Calcium driven inter-organelle crosstalk: a master regulator of skin pigmentation

Research Brief:

Pigmentation plays a vital role in shielding skin from harmful UV radiation, with its impairment linked to both social stigma and increased skin cancer risk. In one of the key avenues of research in the laboratory, building on prior work, Rajender Motiani's group delves into the intricate dynamics of calcium and the critical role of calcium-handling proteins in pigmentation biology. By exploring these proteins, their interactions, and downstream effectors, the team aims to identify key modulators of pigmentation. Their ambitious goal is to screen and repurpose pre-approved drugs, paving the way for novel therapeutic interventions and solutions to pigmentation-related challenges.

[Link to the announcement.](#)

Member, American Academy of Arts and Sciences, 2024



Uma Ramakrishnan
Senior Fellow, 2022,
NCBS, Bengaluru

Dr. Uma Ramakrishnan from the National Centre for Biological Sciences, Tata Institute of Fundamental Research, Bengaluru has been elected as a Member of the American Academy of Arts of Sciences, 2024

Research Brief:

Dr Ramakrishnan's work in the areas of wildlife biology, population genetics, conservation etc is well known globally and she has contributed to both basic sciences and its applications in wildlife conservation. Her laboratory uses genetic data to understand how changes in the ecosystem affect biodiversity. Her laboratory has pioneered methods to study the population genetics of tigers by studying their faecal samples. She is also interested in understanding how geography affects the biodiversity in mountain bird communities. She is also active in framing policies for wildlife conservation and has a passion for teaching and science popularisation.

[Link to the announcement.](#)

Infosys Prize 2024 Laureate in Life Sciences



Siddhesh Shashikant Kamat
Former India Alliance
Fellow, 2015, IISER, Pune

Dr. Siddhesh Kamat has received the Infosys Prize 2024 for his work on bioactive lipids. His research sheds light on the crucial role of lipids in various cellular functions and human diseases. Dr Kamat's work has made significant contributions to our understanding of lipid metabolism and signalling pathways. His findings have the potential to lead to new treatments and therapies for a range of health conditions.

Research brief:

Dr. Kamat's research focuses on lyso-phosphatidylserine (lyso-PS), a bioactive lipid. His work showed that mutations affecting its metabolism contribute to neurodegenerative diseases. Using advanced LC-MS techniques, he demonstrated that bioactive lipids play key roles in immune responses, like pathogen clearance and histamine release, suggesting a link between the nervous and immune systems in neurological disorders. His work also highlights how lipid oxidation impacts disease through the metabolism of oxidized PS.

[Link to the announcement.](#)