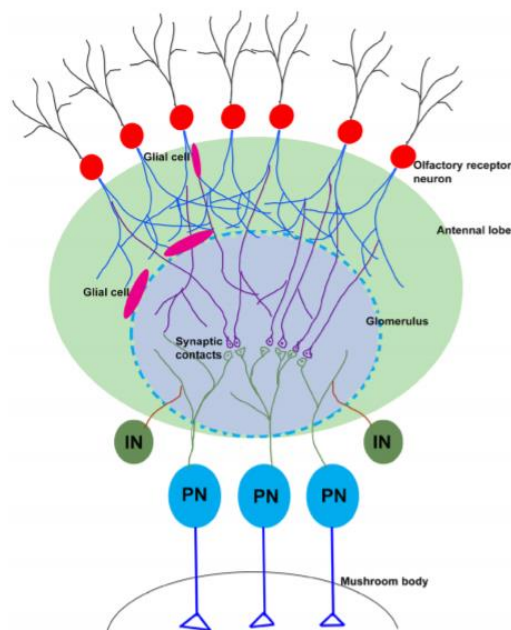


Understanding brain development – Indian researchers’ past, present and growing contribution

Indian developmental neurobiologists have contributed immensely to this understanding utilizing a variety of model systems used for studying brain development. The survey conducted by scientist at DBT’s Institute for Stem Cell Science & Regenerative Medicine (inStem), Bengaluru highlights the significant contributions made by Indian researchers in the study of brain development. As an ever-growing research field, and with newer genetic and molecular tools, together with several new centres of excellence, India’s contribution to this fascinating field of study is continually rising.

The survey thus emphasizes the seminal discoveries in the past and looks into the future where by using human induced pluripotent stem cells (iPSCs) as *in-vitro* disease modelling systems, researchers will make new discoveries and findings into understanding the human brain development and its disarray in neurodevelopmental disorders.



This work is a part of issue in the journal *International Journal of Developmental Biology* showcasing the pioneering developmental biology research works carried out in India. The author, Dr. Bhavana Muralidharan, is a member of the faculty at the Brain Development and Disease Mechanisms (BDDM) theme at inStem and a Wellcome Trust DBT India Alliance-Intermediate Fellowship awardee. Her lab studies cerebral cortex development in health and disease using the mouse and patient-derived human iPSCs as model systems.

The brain is a complex organ, and the vast array of neural cell types and their connectivity determine its function. Brain development and the vast array of neurons and glia it produces is a baffling mystery to be studied. Neuroscientists using a vast number of model systems have been able to crack many of the nitty-gritty details using various model systems. One way has been to size down the problem by utilizing the power of genetics using simple model systems such as *Drosophila* to create a fundamental framework in order to unravel the basic principles of brain development. Scientists have used simpler organisms to uncover the fundamental principles of brain development and also to study the evo-devo angle to brain development. Complex circuitry has been unravelled in complex model systems, such as the mouse, to reveal the intricacies and regional specialization of brain function.

Link: <http://www.ijdb.ehu.es/web/paper/190204bm/understanding-brain-development-indian-researchers-past-present-and-growing-contribution>

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