

IMCB Invited Speaker



Speaker : Dr. Raghu Padinjat
*Associate Professor, National Centre for Biological Sciences,
Bangalore, India*

Date : 15 April 2013 (Monday)

Time : 4:00PM - 5:00PM

Venue : IMCB Seminar Room 3-46, Level 3, Proteos, Biopolis

Host : Dr. Sudipto Roy

Seminar :

Control of cell size and growth by phospholipid kinases

During development, *Drosophila* larvae undergo a dramatic increase in body mass wherein nutritional and developmental cues are transduced into growth through the activity of complex signalling pathways. Class-I phosphoinositide 3-kinases (PI3K) have an established role in this process. In this study we identify *Drosophila* phosphatidylinositol 5-phosphate 4-kinase (dPIP4K) as a novel phosphoinositide kinase that regulates growth during larval development. Loss-of-function mutants in dPIP4K show reduced body weight and prolonged larval development while overexpression of dPIP4K results both in an increase in body weight and shortening of larval development. The growth defect associated with dPIP4K loss-of-function is accompanied by a reduction in the average cell size of larval endoreplicative tissues. Our findings reveal that these phenotypes are underpinned by changes in the signalling input into the TOR (target of rapamycin) signalling complex and changes in the activity of its direct downstream target S6K. Together, these results define dPIP4K activity as a novel regulator of cell growth and TOR signalling during larval development.

About the Speaker :

Dr. Raghu Padinjat trained as a physician and subsequently completed a Ph.D in Molecular Biology from that Tata Institute of Fundamental Research. After post-doctoral training at the University of Cambridge, he was Principal Investigator at the University of Cambridge and the Babraham Institute, Cambridge for several years. In 2010 he took up his current position as Associate Professor at the National Centre for Biological Sciences, Bangalore INDIA. Dr. Padinjat has a long-standing interest in understanding intracellular signalling pathways, especially phosphoinositide signalling that controls fundamental cell biological processes in metazoans. His principal experimental model is the fruit fly *Drosophila* where he uses a combination of genetics and cell biology to uncover novel principles of cell signalling.