



Indian Institute of Technology Delhi

DEPARTMENT OF BIOCHEMICAL ENGINEERING & BIOTECHNOLOGY

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Investigating the mechanisms of polyploidy in megakaryocytes

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Megakaryocytes (Mks) are platelet producing specialized cells of the haematopoietic system. Mks are produced through the differentiation of haematopoietic stem cells into the progenitors of the Mk lineage. Subsequently, complex and concerted cellular changes lead to the production of large polyploid Mks. Polyploidy is functionally important because of its direct correlation with the number of platelets produced by Mks. This talk will highlight the mechanisms responsible for polyploidy i.e. 1) regulation of tetraploid checkpoint arrest pathway and 2) physical regulation of cell separation.

During their development, Mks shift from mitotic cell division to endomitosis whereby they replicate their DNA without undergoing cytokinesis. I studied the regulation of this complex process by looking into the effects of low RhoA activity in polyploid Mks. The study revealed that low RhoA activity prevented the activation of the Hippo-p53 pathway dependent tetraploid checkpoint arrest. Furthermore, low RhoA activity mediated changes in the actin cytoskeleton abolished non-muscle myosin IIa (predominant isoform of myosin II in Mks) from the cleavage furrow leading to the failure of cytokinesis.

All are welcome

Seminar will be held in DBEB SEMINAR ROOM at **Block I, Room 223 at **4 PM**
For additional information, contact Seminar coordinator D. Sundar at sundar@dbeb.iitd.ac.in**