

TIFR-UoH (Life Sciences) Seminar Series

Precision destruction of APC/C substrates orchestrates mitosis: How precise it is?

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The accurate chromosome segregation during mitosis is essential for proper cell division in normal cells. The anaphase promoting complex/cyclosome (APC/C), an ubiquitin ligase, control the cell division by regulating mitosis through ubiquitin-directed proteolysis of key substrates in an ordered fashion to direct progression through mitotic exit, chromosome segregation and cytokinesis. The activity of APC/C during cell cycle is coordinated by two regulatory proteins, CDC20 and Cdh1, which are very active in the different sub-phases of mitosis. Through phase-specific interactions during cell cycle with these two key proteins, APC/C promotes cell division with precision and accuracy. The APC/C interacts with CDC20 only during prometaphase/metaphase of mitosis and degrades it after metaphase in a Cdh1-dependent manner. Whereas, Cdh1 interacts with APC/C at later stages of mitosis and degrades proteins like cyclin B1, Eya, Sgo-1 etc., to exit from mitosis. Hematopoietic PBX-interacting protein (HPIP) is a proto-oncoprotein. Emerging studies revealed that HPIP not only regulates cell migration and invasion, but also promotes cell proliferation by modulating the expression of various cyclins during the cell cycle. However the precise mechanism of its regulation remains largely unknown. The interplay between HPIP and APC/C complex and how it precisely regulates cell division by controlling mitosis will be discussed.

Tuesday, Jan 16th 2018

04:00 PM (Tea/Coffee at 03:30 PM)

Auditorium, TIFR-H