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THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY
Division of Life Science

Center of Systems Biology and Human Health

Growth Control by Hippo Signaling

by

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Abstract:

During development of multicellular organisms, cells communicate with each other through highly conserved signaling pathways such as the Hippo signal transduction pathway. Hippo signaling, initially identified in *Drosophila*, restricts tissue growth and organ size by limiting cell proliferation and promoting apoptosis. Early on, my laboratory discovered a key component of this pathway, Mob as tumor suppressor (Mats). We found that Mats functions as a co-activator of another tumor suppressor, the Warts (Wts)/Large tumor suppressor (Lats) protein kinase. Human MATS can functionally replace the *Drosophila* Mats protein when expressed in fly. Moreover, we found that Mats is a target of Hippo kinase. Mats phosphorylation by Hippo increases its affinity with Wts/Lats and ability to increase Wts catalytic activity to down-regulate a growth-promoting protein Yorkie (Yki). Importantly, the mechanism by which Mats is activated by Hippo via phosphorylation is conserved from fly to human. We have also learned that membrane association provides an effective mechanism for Mats to activate the Wts kinase in the Hippo pathway. In our recent work, we have focused on regulation of a major downstream target of Lats1/2 kinases, YAP, which is a human ortholog of the fly Yki. Specifically, we found that a C-terminally truncated LATS1 protein called short LATS1 (sLATS1), plays a dual role in regulating YAP transcriptional activity and cell growth. Our studies suggest that sLATS1 increase or decrease YAP activity in a context-dependent manner.

Date : 20 April 2018 (Friday)
Time : 3:00 p.m.
Venue : Lecture Theater E (Lift 25/26)
(Host faculty: Prof. Mingjie Zhang)

All are Welcome!