NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Biological Sciences
College of Science

Seminar Announcement

Not all pErk2 are the same: N-WASP suppress cell proliferation through pErk2

Date: **30 October 2020, Friday**

Time: **4pm**

Venue: **Classroom 1, SBS**

N-WASP regulates actin cytoskeleton remodeling and play critical role in metastasis through its role in invadopodia formation. We have now identified the regulation of N-WASP expression during hypoxia and metastasis. N-WASP has been suggested to be a Tumor suppressor with poor prognosis for cancer patients with reduced N-WASP expression. Conditional knockout of N-WASP in keratinocytes enhanced cell proliferation consistent with its role in tumor suppression. In order to characterize N-WASP mediated tumor suppression we generated cell line overexpressing N-WASP (HSC-5NW cells) and found that these cells had reduced cell proliferation and migration. HSC-5 cell had reduced pAKT, elevated P-ERK2 (extracellular signal-regulated kinase), reduced total and nuclear FOXO1 (Forkhead Box O1) level and increased TXNIP (Thioredoxin Interacting Protein) expression. Activation of ERK1/2 is strongly correlated to increased cell proliferation and cancer progression. Inhibition of ERK2 in HSC-5NW cells restored cell proliferation and nuclear FOXO1 while knocking down TXNIP also rescued cell proliferation. Thus our results suggest that N-WASP inhibit cell proliferation through ERK2/FOXO1/TXNIP pathway. However the molecular nature of pERK2 and its substrates in HSC-5NW cells are not known. Characterization of pERK2 (activity and formation) will give us valuable insight for formulating therapy for cancers with elevated pERK2.

Speaker:

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