



Department of Biotechnology
Ministry of Science and Technology
Government of India
DBT



National Institute of
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AIST

DBT - AIST International Laboratory for Advanced Biomedicine

DAILAB

Classroom for Advanced & Frontier Education CAFE

DAILAB-CAFE

Series - 003

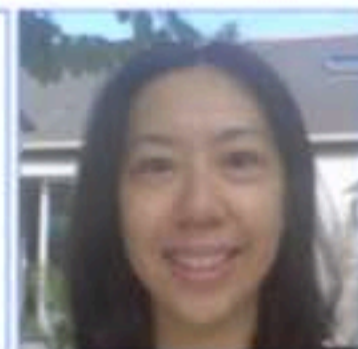
Date and Time - Sept. 11, 2014/ 4 PM ~

Venue - Central 4-1; 2F (Meeting Room -1)

Speaker – **Caroline Cheung**

Affiliation – CNRS/INSERM, Montpellier, France

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Title – Cyclin A2 is a novel regulator of EMT

Cyclin A2 is classically known to regulate the cell cycle through activation of cyclin-dependent kinases (CDK), but new studies have shown that it is also involved in cytoskeletal dynamics, epithelial-mesenchymal transition (EMT) and metastasis. We recently showed that cyclin A2 levels were much higher in metastatic carcinoma cells relative to primary tumor cells, *in vitro* as well as in human tissue. In *in vitro* assays using oncogene transformed mammary epithelial cells, cyclin A2 knockdown induced EMT, as indicated by a decrease and delocalization of E-cadherin, and upregulation of EMT markers such as N-cadherin, fibronectin, metalloproteases, as well as the transcription factors Zeb2, Slug, and Twist2. Notably, markers that are associated with cancer stem cells (CSC), including Nanog and Oct4, were also increased in cells depleted for cyclin A2. Further, these cells were able to resist anoikis and form tumorspheres under nonadherent conditions. We also found that there were increases in GSK-3beta protein phosphorylation and nuclear translocation of beta-catenin, which indicate WNT pathway activation, following cyclin A2 depletion. However, the WNT inhibitor, C59, did not rescue the EMT phenotype. But the dominant-negative form of TCF4, a crucial binding partner of beta-catenin that together function as a transcriptional activator complex, as well as inhibition of phospholipase C using U73122 reversed the EMT phenotype induced by Cyclin A2 depletion, which suggest a WNT-independent mechanism of activation of beta-catenin via phospholipase C in EMT.

September 11, 2014



DAILAB-CAFE 003

Dr. Caroline Cheung



Thanks Caroline !

*Thanks very much for being DAILAB-CAFE 003 speaker
All of us here at DAILAB-AIST
Yun' et al @Hanyang University, Seoul, Korea
Gao et al @ Peking Medical University, Beijing, China
&
Sundar et al @ IIT-Delhi, India ENJOYED YOUR TALK.*