



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

“Involvement of G12 Proteins in Signaling Processes Impacting Cancer Cell Metastasis and Stemness”

by

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Abstract

Although patient survival for those diagnosed with local disease has improved, metastatic disease continues to contribute significantly to the morbidity and mortality of cancer. A detailed understanding of the mechanisms of how cancer metastasizes would provide critical information for development of successful therapies for this patient population. G α 12 and G α 13, two closely-related α subunits of heterotrimeric G proteins encoded by the GNA12 and GNA13 genes, respectively, are upregulated during progression of many solid tumors, implying that amplification of G12 signaling may be an early event in cancer progression. When activated, this family of G proteins leads to activation the Rho GTPase and c-Jun NH₂-terminal kinase (JNK), and inactivation of the cell adhesion molecule E-cadherin; these processes are known to play crucial roles in cancer metastasis. Inhibition of the G12/13 signaling pathway has profound inhibitory effects on in vitro invasion of both cancer types, and markedly impaired in vivo metastasis in a murine breast cancer model. In our recent work, we have identified microRNAs as key elements in the control of GNA13 expression in breast and prostate cancer cells, and have identified secreted molecules that contribute to the impact of activation of G12 proteins on breast cancer cell migration and invasion. These findings have led to an appreciation that elements of epithelial-mesenchymal transition (EMT) come into play upon elevation of GNA12/13 activity, and that these processes impact the stem cell-like properties associated with progression and drug resistance of several cancers.

Date : 10 February 2017 (Friday)

Time : 4:00 p.m.

Venue : Lecture Theatre C

**The Hong Kong University of Science & Technology
Clear Water Bay, Kowloon**

(Host faculty: Prof. Y H Wong)

ALL ARE WELCOME!!