City University of Hong Kong
Department of Biomedical Sciences
presents a seminar

"TRANSITIONAL EPITHELIUM: MERGING MICROENVIRONMENTS AND CELLULAR TRANSFORMATION"

by

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Date: 12 August 2016 (Friday)
Time: 11.00am to 12.30pm
Venue: Meeting room 2-130, 1/F, Block 2, To Yuen Building, CityU

Abstract

Transition zones define the junction between two types of epithelia and are found throughout the entire body1. We and others have recently shown that transition zones express specifically common markers of stem cells and contain slow-cycling cells2, another hallmark of many tissue stem cells. These zones are highly susceptible to aggressive tumor formation in humans and mice but the underlying molecular and cellular reasons remain elusive.

The identity of the cell population and the signaling pathways involved in transition zone squamous cell carcinoma progression are poorly understood, hence representing limited options for targeted therapies. Using a novel mouse model for transitional epithelial cancers we developed by conditionally targeting Transforming Growth Factor β receptor II (TGFβRII) in all Keratin 14 positive progenitors of the stratified epithelium3, we have characterized a cancer stem cell population which is highly clonogenic *in vitro* and highly tumorigenic and metastatic *in vivo* when transplanted in their microenvironment of origin4. TGFβ-deficient epithelial tumor cells can form invasive and metastatic tumors when transplanted in transition zones such as the anorectal and cervical region. Comparative transcriptomic analysis of the cancer stem cells versus non-invasive and non-metastatic populations revealed a novel mechanism by which loss of TGFß signaling mediates its invasion and metastasis which provides a promising therapeutic target for human epithelial cancers.

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All are welcome