



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

LIFS Seminar Series

Gut microbial dysbiosis and GI
carcinogenesis: basic and translational

by

Prof. Jun YU

*Department of Medicine and Therapeutics
State Key Laboratory of Digestive Disease
The Chinese University of Hong Kong*

Abstract:

Gastrointestinal (GI) cancers (stomach and colon) are common cancers worldwide. They arise due to a combination of genetic and environmental factors. Emerging evidence indicates that some microbes in the gut may be an important environmental factor leading to GI cancers. To understand the role of gut microbes in colorectal cancer, we have conducted two large-scale association studies to compare the stool (*Gut 2015*) and mucosal (*Nat Commun 2015*) microbes in colorectal cancer patients and healthy individuals using short gun metagenome sequencing and 16s sequencing respectively. We demonstrated that faecal transplantation of samples from patients with colorectal cancer promotes intestinal carcinogenesis in germ-free and conventional mice (*Gastroenterology 2017a*). Our studies identified several bacterial species that were significantly enriched in colorectal cancer patients. Some microbes have been reported to promote cancer growth, whereas some were novel and their relationships with colorectal cancer have not been described. The molecular bases of how the novel microbes play roles in the formation of colorectal cancer were investigated (*Nature Biotech 2016, Cancer Res 2016*). We have revealed that the oncogenic function by the key bacteria is associated with inducing oncogenic factors and signalling pathways (*Gastroenterology 2017b*). We tested the feasibility of harnessing genetic information from these microbes for non-invasive diagnosis of the disease (*Clin Cancer Res 2016, Gut 2016*). Moreover, we identified differences in bacterial interactions across stages of gastric carcinogenesis in addition to microbial compositional changes. The significant enrichments and network centralities suggest potentially important roles of *P. stomatis*, *D. pneumosintes*, *S. exigua*, *P. micra* and *S. anginosus* in gastric cancer progression (*Gut 2017*). The findings may help to provide new insights for the molecular pathogenesis of GI cancers, the potential diagnostic bacteria markers for GI cancers and the control of these malignances.

Date : **10 August 2018 (Friday)**
Time : **4:00 p.m.**
Venue : **Lecture Theatre J
The Hong Kong University of Science
& Technology
Clear Water Bay, Kowloon**

(Host faculty: Prof. Jiguang Wang)

All are Welcome!!