NUS National University of Singapore | Department of Biological Sciences Faculty of Science

ON-SITE BIOLOGY COLLOQUIUM

Friday, 1 Aug 2025 | 4 pm | S3 05-02 Conference Room 1

Hosted by Assoc Prof Liou Yih-Cherng

Map to Block S3

Deciphering the Tumor Microenvironment to Advance Immunotherapeutic Strategies for GI Cancers

By **Li FU**

Vice Dean, University Medical School, Shenzhen University

Gastrointestinal (GI) Cancer is common yet fatal malignances in the Chinese population. Although immunotherapy brings new hope to patients with advanced GI cancers, it still faces challenges such as low treatment response rates and immune-related adverse effect. The hindrance to achieving efficient and long-lasting immunotherapeutic responses in cancer is, in part, mediated by the dynamic nature of tumor cells and their complex immunosuppressive tumor microenvironment (iTME). Our group has previously demonstrated that FGFR2+CAF-secreted WNT2 serves as a prognostic marker for ESCC patients and supports the malignant progression of ESCC cells in a non-cell-autonomous manner. Additionally, we provided the first evidence that FGFR2+CAFs induce tumor immune escape via paracrine WNT2 signaling. Based on a mouse ESCC syngeneic tumor model developed by our group, we developed an anti-PD1 enhancement strategy by specifically targeting CAF-derived WNT2. In recent study, we have also revealed a new mechanism in which the ATP6V0A1-24-hydroxycholesterol (24-OHC) metabolic axis enhances exogenous cholesterol uptake from the TME, thereby promoting colorectal tumor growth and immune evasion. Furthermore, we identified Daclatasvir, a clinically approved anti-HCV drug, as an ATP6V0A1 inhibitor capable of boosting memory CD8+T cell activity and inhibiting tumor progression in colorectal cancer. Our work provide deeper insights into the intricate iTME. Targeting these critical iTME regulators may improve survival rates for patients with GI cancers.

About the Speaker

Dr. Li FU has a background of clinical medicine and extensive research experience in cancer genetics/epigenetics, proteomics, and molecular cell biology. She obtained a M.B.B.S (1998) from Wuhan University School of Medicine and furthered her systematic biomedical training by acquiring a MSc (2001) from National University of Singapore and a PhD (2007) from The University of Hong Kong. Prior to joining the Shenzhen University School of Medicine in 2014, she worked as an Research Assistant Professor in The University of Hong Kong Faculty of Medicine. Dr. Fu has published 105 papers such as Gut, PNAS, Nat Commun, Oncogene in prestigious journals with total citations of over 4800 (Web of Science H-Index 43). She has obtained more than 10 research grants as PI/Co-PI, including the competitive General Research Fund (GRF) and Collaborative Research Fund (CRF) from Hong Kong government and National Natural Science Foundation (NSFC) from mainland China. She has also obtained 8 China patents, received one CDE approval for Phase I clinical trial, and been honored with the titles of Overseas High-level Talent and Pengcheng Scholar Distinguished Professorship by the Shenzhen Government. Dr. Fu is currently serving as a reviewer for several biomedical journals (e.g., Gut, PNAS, Advanced Science, Clinical Translational Medicine, Oncogene).