DukeNUS Medical School | Cancer & Stem Cell Biology

NCRIS Hybrid Seminar Series

Title:

"Secretory Autophagy and Cancer"

Date: 20th Oct 2022 (Thursday)
Time: 12noon – 1pm (SGT)
Venue: Duke-NUS Amphitheatre , Level 2

Format : *via* **Zoom & in-person**
https://nus-sg.zoom.us/j/82083554618?pwd=anV1Nyt5QkFneElmd2tkdHVXSlY1dz09
Meeting ID: 820 8355 4618 **Passcode: 800072**

Abstract:

Traditionally viewed as an auto-digestive pathway, evidence now demonstrates autophagy as an important regulator of cellular secretion. However, our understanding of secretory autophagy remains rudimentary. We have uncovered that autophagy enables pro-tumorigenic functions in cancer-associated fibroblasts (CAFs). Using genetic mouse mammary cancer models, we find that autophagy ablation in CAFs is necessary for tumor growth in vivo. Furthermore, the genetic ablation of stromal fibroblast autophagy significantly impedes fundamental elements of the tumor desmoplastic response, including collagen secretion, extracellular matrix stiffening, pro-inflammatory cytokine secretion and angiogenesis, which are collectively required to support tumor growth, even when the cancer cells themselves remain autophagy competent. To more rigorously dissect the mechanisms how autophagy facilitates secretion, we have employed quantitative mass spectrometry strategies to identify novel putative targets of autophagy-dependent secretion. These have led to the recent discovery of two secretory autophagy pathways, LDELS and SALI, which have illuminated new roles for the autophagy machinery in cargo selection and biogenesis of extracellular vesicle and particles (EVP).

Speaker:



Jayanta Debnath

Distinguished Professor and Chair
Department of Pathology
University of California San Francisco (UCSF)

Prof Debnath is widely recognized for his expertise in autophagy, a tightly regulated cellular self-digestion process, and how this process regulates epithelial cell fate, oncogenic transformation, and carcinoma progression. He is a board-certified pathologist and completed post-doctoral training with Dr. Joan Brugge (Harvard Medical School), where he became known for his studies of oncogene regulation of cell death using three-dimensional (3D) organotypic culture systems. Since becoming faculty at UCSF in 2005, he has focused on the regulation of autophagy in cancer, publishing over 65 papers and invited reviews and receiving multiple extramural grants from the NCI, DOD, and private foundations. Prof Debnath's laboratory pursues two broad goals: (1) to delineate the multifaceted roles of autophagy in adhesion independent survival and transformation in vitro, as well as on cancer progression and metastatic disease in vivo; and (2) to dissect the biochemical and in vivo physiological functions of the molecules that control autophagy (called ATGs) to ultimately exploit this process for therapeutic benefit.

Host:

Hong-Wen Tang
Assistant Professor
Programme in Cancer & Stem Cell Biology
Duke-NUS Medical School Singapore

No registration is required.
All are welcome.
Any enquiries, please contact:
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