National Research Foundation (NRF) Fellow Finalist Talk

Circulating Tumor Cells (CTCs): A Unique Window Into Cancer Metastasis & Non-invasive Biomarkers Of Therapeutic Response

Abstract:

The emergence of CTC-based preclinical models has begun to unravel the mystery steps in blood-borne metastasis and enable the precise identification of CTC-specific biomarkers for the non-invasive monitoring of disease progression and therapeutic response. Using next generation CTC-iChip microfluidic technology, I have established blood-derived melanoma CTC cell lines and identified an intricate regulatory module that coordinates *SREBP*-dependent lipogenesis and *Transferrin*-mediated iron homeostasis programs, which are critical for CTC survival and therapeutic resistance. Single-cell transcriptomic analyses revealed that a subset of primary CTCs with elevated lipogenic/iron-dependent metabolic signatures were significantly associated with worse prognosis. Finally, a 19-gene CTC-specific biomarker panel (CTC-Score) was developed to non-invasively monitor early tumor response to immunotherapies in melanoma. A decrease in CTC-Score within 7 weeks of therapy correlated with marked improvement in patient survival. Thus, preclinical modeling using CTC liquid biopsy serves as an integrative platform to directly translate mechanistic biology into clinical applications.

Date:

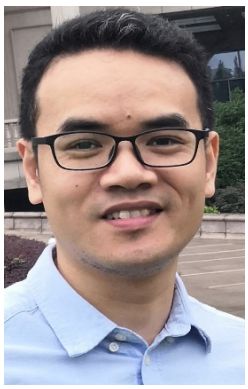
14 Oct 2019 (Monday)

Venue:

Meeting Room 7C
Duke-NUS Medical School
8, College Road,
Singapore 169857

Time:

15:00 - 16:00 p.m.



Speaker:

Dr. Xin Hong
HHMI Post-doctoral Fellow

Howard Hughes Medical Institute
MGH Cancer Center
Harvard Medical School

Host:

David Virshup
Professor & Director
Programme in Cancer & Stem Cell Biology
Duke-NUS Medical School
Singapore

Dr Xin Hong received his PhD from National University of Singapore under the supervision of Prof Stephen M. Cohen. He is currently a postdoc fellow in the laboratory of Profs Daniel Haber & Shyamala Maheswaran in Harvard Medical School. While in Harvard, he applied inter-disciplinary approaches involving microfluidic technologies, mouse cancer models and single cell genomics to establish and characterize preclinical CTC model systems as powerful platforms for translational cancer research.

No registration is required.
All are welcome.
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