THE CHINESE UNIVERSITY OF HONG KONG
FACULTY OF MEDICINE
SCHOOL OF BIOMEDICAL SCIENCES

SBS PI Seminar Series 2023-2024

Prof. FUNG Yee Mun Erik

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Centre for Cardiovascular Genomics and Medicine
The Chinese University of Hong Kong

will present a seminar entitled

"Biomarker and metabolomic profiling of cardiovascular aging and frailty"

The Undiagnosed heart Failure in frail Older individuals (UFO) cohort study was established in 2017 with aims to characterize and phenotype 1,400 older adults (age ≥60 years) across 18 districts of Hong Kong for aging-related cardiac dysfunction, frailty status and blood metabolome that were associated with incident adverse clinical outcomes. The multi-domain frailty assessments performed included the FRAIL scale, SARC-F sarcopenia questionnaire, 6-minute walk test, gait speed and handgrip strength measurement. Echocardiographic diastolic dysfunction (impaired ventricular relaxation) was found to be the predominant cardiac dysfunction and was highly prevalent among study participants. Blood biomarkers were validated in the stratification of cardiac dysfunction and frailty with predictive capacity for all-cause mortality and hospitalization. Of note, integrative analysis of GDF15 with specific serum metabolomic markers enabled a specific metabolomic biosignature for frailty to be characterized, and improved the prediction of frailty and adverse outcomes. To deepen our understanding of cardiovascular aging and frailty, we analyzed multiple epigenetic clocks in a subset of participants, and identified epigenetic age acceleration estimated by GrimAge2 (that incorporated differentially methylated positions in the *GDF15* gene, among others) as being most strongly associated with frailty, inflammation (indicated by increased GlycA levels), and adverse lipid/liproprotein profile verified against risk estimation by the AHA/ACC 10-year atherosclerotic cardiovascular disease (ASCVD) risk calculator. In summary, metabolomic shift, epigenetic age acceleration and inflammaging are seen in older adults at increased cardiometabolic risk and frailty.

4 June 2024, Tuesday, 4:00 – 5:00 pm

Room G02, Lo Kwee-Seong Integrated Biomedical Sciences Building,
Area 39, The Chinese University of Hong Kong