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The NO-Age and NO-AD Seminar Series # 44

'**Excessive alcohol misuse and accelerated brain aging - A metabolic perspective**' (Tentative title)

by

Assist Prof. Dr. Kim Hei-Man Chow,
School of Life Sciences, Chinese University of Hong Kong

at

14:00-15:15 (CET),Monday, 7th March 2022

Registration ahead
https://uio.zoom.us/webinar/register/WN_7MYkWKhgQkKnX-ULIZqHgQ

Organizers:
Evandro F. Fang (UiO), Jon Storm-Mathisen (UiO), Lene Juel Rasmussen (KU), W.Y. Chan (CUHK)

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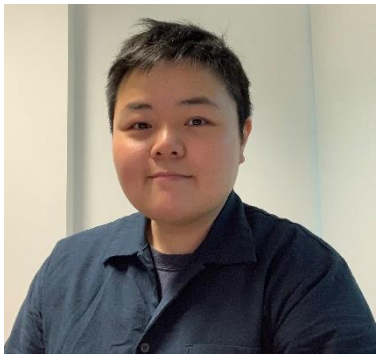

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Speaker: Assistant Prof. Dr. Kim Hei Man CHOW
Title: '**Excessive alcohol misuse and accelerated brain aging - A metabolic perspective**' (Tentative title)

Abstract:
Binge drinking is a risk factor to accelerated brain aging and dementia, but the prolong effect of alcohol remains elusive. We show that transcriptomic changes in brain cortices revealed pro-aging hallmarks upon chronic ethanol exposure and these changes predominantly occur in excitatory neurons. The changes are attributed to the prioritized ethanol oxidation in these cells, hijacking the 1-carbon network which cross talks with the pathway choice of DNA repair favouring non-cell cycle-dependent networks. Consequently, DNA lesions-emerged from ethanol metabolism were prodominantly handled by the homologous recombination network instead. However, since mature neurons are posi-mitotic the repair process eventually fails to complete. The resulting persistence of repair intermediates induces nuclear-entrance of cyclin B-a trigger for permanent cell cycle exits and senescence response. These findings offer a direct connection between chronic drinking and its lasting effect on age-related neurodegeneration and cognitive decline.

Biography:

Dr. Kim Hei-Man CHOW is currently an assistant professor in School of Life Sciences of the Chinese University of Hong Kong. She received her graduate training from the University of Hong Kong and received her postdoctoral training at Cornell University and then a research assistant professorship training at the Hong Kong University of Science and Technology (HKUST). Dr. Chow was the recipient of multiple international fellowships, including the Alzheimer's Association Research Fellowship from the Alzheimer's Association of USA (2017), the Global Future Council Fellowship from the World Economic Forum (2016-2019) and the Excellent Young Scientist Fund from the National Natural Science Foundation (2020). The Chow Lab research interests are on metabolic and aging-related mechanisms underlying pathological brain aging and related neurodegenerative disorders. Current projects aim at delineating the molecular signatures of rare subpopulations of senescent cells in diseased brains or those suffers from pathological aging, in hope to identify new targets for senolytic or senomorphic drugs development.