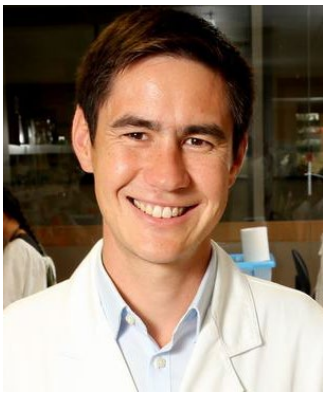
Neuroscience & Non-Communicable Diseases WEBINAR – All welcome

Friday 27 May 2022, 3pm

"Overcoming impaired cell metabolism to restore fertility in reproductive ageing and chemotherapy treatment."

Speaker: Lindsay Wu, Laboratory for Ageing Research, SoMS, UNSW



Biography:

Lindsay Wu leads the Laboratory for Ageing Research in the School of Medical Sciences, where his lab studies new molecular mechanisms and interventions to delay biological ageing, with a focus on the metabolism of nicotinamide adenine dinucleotide (NAD+). His lab uses metabolomics, rodent studies, C. elegans and drug screening as tools for this research, which has resulted in findings that are being tested in ongoing clinical trials. He completed a PhD in the Diabetes and Obesity program at the Garvan Institute in 2010, and has been independently funded by Cancer Institute NSW and the NHMRC since 2014, with additional support from start-up companies that have been formed as a result of work from the lab.

Abstract:

Impaired oocyte quality and infertility is the earliest system to decline in mammalian ageing, due to the non-renewable nature of the ovarian reserve. Given societal trends towards delaying the age of parenthood, there is an explosion in demand for assisted reproduction, which is invasive, expensive and has a poor success rate. While impaired infertility is commonly attributed to genomic causes, i.e. aneuploidy as a result of impaired chromosome segregation, we recently showed that declining levels of the redox cofactor nicotinamide adenine dinucleotide (NAD+) are a reversible cause of age-related infertility, resulting the ongoing ENHANCE trial at the Fertility & Research Centre at Royal Women's Hospital to test whether NAD+ precursors enhance IVF success rates. In addition to this work, we will show data from newly developed NAD+ precursor derivatives, and their ability to restore embryo development following IVF in the context of maternal ageing – an intervention that could be rapidly translated to clinical practice, with additional strategies to enhance embryo development from our screening and discovery of allosteric activators of the pentose phosphate pathway enzyme G6PD. Further, we will show unpublished data regarding the ability of NAD precursors to overcome infertility caused by chemotherapy treatment, with profound impacts on late-life health including bone health. Finally, we will present the results of isotopic labelling studies that provide new insights into our fundamental understanding of NAD metabolism, with important implications for the clinical development of NAD precursors and our understanding of PK/PD studies.

All welcome!

Click here to join the meeting

Enquiries: Lindsay Wu lindsay.wu@unsw.edu.au