

The function of DNA damage in brain development and homeostasis

Abstract:

DNA damage response (DDR), including DNA repair, cell cycle control, apoptosis and gene transcription, is vital for the maintenance of genomic stability. The protein kinases ATM and ATR govern two key DDR pathways, which are activated by either DNA double strand breaks (DSBs) or single stranded DNA (SSBs) as well as replication stress. MRE11, RAD50 and NBS1 form the MRN complex to activate ATM in response to DSBs, but also ATR depending on cell cycle phases. Mutations of these molecules cause genomic instability syndromes, including human Ataxia-Telangiectasia (A-T, ATM mutated) and ATR-Seckel syndromes (ATR mutated), A-T like disorders (A-TLD, MRE11 mutated), and NBS (NBS1 mutated), characterized by various developmental defects and also pathologies in adult life, including cancer, immune deficiency, and neurodevelopmental and degeneration defects. Despite a great deal of biochemical studies, the mechanism by which these DDR molecules contributes to the etiology of the diseases remains largely unknown. We attempted to decipher the biochemical and physiological functions of these DDR molecules in neuro-stem cells and postmitotic neurons using cellular and mouse models.



Speaker:

Zhao-Qi Wang, Ph.D.

Professor
 Senior Group Leader
 Genomic Stability
 Leibniz Institute on Aging -
 Fritz Lipmann Institute (FLI)
 Jena, Germany

Date:

**22 March 2019
 (Friday)**

Venue:

Amphitheatre, Level 2
 Duke-NUS Medical School
 8, College Road,
 Singapore 169857

Time:

12:00 - 1:00 p.m.

Host:

Kanaga Sabapathy

Professor
 Cancer & Stem Cell Biology
 Duke-NUS Medical School
 Head and Principal Investigator
 Division of Cellular & Molecular
 Research
 National Cancer Centre
 Singapore

Prof. Zhao-Qi Wang received his B.S. Shandong University in 1982; M.S. from Peking Union Medical College (PUMC) in 1985; Ph.D. from Innsbruck University in 1993. Since 2006 he is a full Professor at Friedrich-Schiller-University Jena and Senior Group Leader at Leibniz Institute on Aging—Fritz Lipmann Institute (FLI), Jena, Germany. His research focuses on DNA damage response and genomic stability using mouse models. His favorite molecules include ATM, ATR, NBS1, PARP1, MCPH1 and Trapp-HAT. He published more than 175 research papers, H-Index is 68. He is honored as Visiting professor of Peking Union Medical College (PUMC)/Chinese Academy of Medical Sciences (CAMS), China; “Overseas’ Representative” of Chinese Anti-Cancer Association (CACA, UICC Branch); “Expert Judges” of Chinese Academy of Sciences (CAS), China; Elected Member of the Academia Europaea (MAE).

**No registration is
 required.**

All are welcome.

Any enquiries, please contact:
 Jamie Liew (+65 6516 6954)