NUS National University of Singapore | Department of Anatomy
Yong Loo Lin School of Medicine

NUHS National University Health System

PHD ORAL DEFENSE

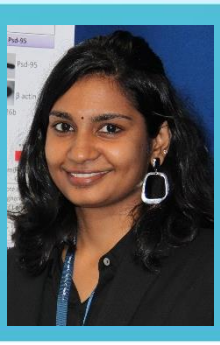
ANALYSIS OF EPIGENETIC MECHANISMS IN NEURAL STEM CELLS OF MOUSE EMBRYOS FROM DIABETIC PREGNANCY

Maternal diabetes is known to cause neural tube defects (NTDs) in embryos and neuropsychological deficits in infants. Several metabolic pathways and genes have been identified to be deregulated in developing brain of embryos by maternal diabetes, although the exact mechanism remains unknown. Recently, miRNAs have been shown to regulate brain development and maturation. Therefore, it was hypothesized that maternal diabetes alters the expression of small non-coding RNAs called microRNAs(miRNAs) and subsequently the expression of their target genes in neural stem cells (NSCs) thereby resulting in structural or functional malformations in the developing brain. Two miRNAs, miR-30b and miR-26b-5p which are predicted to target Sirtuin1 (Sirt1), a histone deacetylase and Methyl CpG binding protein (Mecp2) respectively were selected from microRNA microarray previously done in our lab. The role of Sirt1 in NSC differentiation and the role of Mecp2 in synaptogenesis were elucidated in NSCs. Overall, these results suggest that maternal diabetes alters genes involved in brain development and patterning via miRNAs resulting in NTDs or neuropsychological deficits.

Thursday
13 December 2018
10.00 am – 11.00 am
Seminar Room, MD10
Level 2, Anatomy Museum

SESHADRI RAMYA

Graduate Student
Anatomy, NUS Medicine



Address enquiries Dr Hu Qidong at 66013730 or Ms Nuramalina Binte Abdul Ghani at 65163200. All are welcome.