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| Project Title: A new therapy for weight loss before pregnancy: Can preconception GLP-1 therapy reduce the adverse foetal programming effects of maternal obesity and gestational diabetes in mice? | | Code: NCS5 |
| Host School / Institute: Northern Clinical School / Kolling Institute | | Address: Level 9, Renal Research Group, Kolling Institute |
| Certificates & Clearances required: No | | |
| Primary Supervisor: Dr Sarah Glastras | | |
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| Co-Supervisor/team: Professor Carol Pollock (lab head) and Dr Natassia Rodrigo (PhD student) | | |
| Project Type: Laboratory based; Data Analysis | | |
| Project Category: Endocrinology/Metabolism; Nutrition/Obesity | | |
| Skills / Attributes of a successful student: Some understanding of simply laboratory skills (e.g., pipetting, following experiments). Ability to apply experimental techniques once shown, troubleshoot, ask for help when needed, work collaboratively within a team environment. | | |
| Project Keywords: Maternal obesity; Pregnancy; Foetal programming; Offspring; Chronic disease | | |
| <p>Project Description: Offspring born to obese mothers and those born to mothers affected by gestational diabetes mellitus (GDM) in pregnancy are at risk of long-term metabolic health issues, including obesity and type 2 diabetes in adulthood. Previous studies have failed to identify methods of weight loss for women prior to pregnancy that can prevent GDM, reduce perinatal morbidity and ameliorate adverse foetal programming effects. We aim to explore the effect of a weight-loss medication, namely the glucose-like peptide-1 (GLP-1) agonist liraglutide, administered prior to pregnancy in rodents, on weight gain and glucose intolerance in pregnancy, and specifically determine if significant weight loss pre-pregnancy can reduce the adverse foetal programming effects.</p> <p>If pre-pregnancy use of the GLP-1 agonist reduces the adverse foetal programming effects associated with maternal obesity and GDM, it suggests a clinical strategy for pre-pregnancy use in obese women, potentially ameliorating the transgenerational propagation of obesity and type 2 diabetes. Such findings will be hugely beneficial in combating the growing epidemic of overweight and obesity, especially in childhood.</p> <p>The animal component of this study will be complete by Summer 2019-2020. Therefore, your role will be to perform laboratory-based experiments including Western blottings, immunohistochemistry and real-time PCR. You will be shown and guided on how to do these experiments. You will be working alongside an existing PhD student. You will be specifically looking at the kidney outcomes for the offspring exposed to maternal obesity and/or liraglutide. Your role will include analysis of data, interpretation of results with intentions to publish the results in a peer-reviewed journal. All work will take place at the Kolling Institute which is located on the Royal North Shore Hospital campus.</p> | | |