Supervisor Name: Dr Logan Walker, Dr Margaret Currie and Dr Elisabeth Phillips

Research Group: Mackenzie Cancer Research Group

Obesity and breast cancer development

Project outline:
Obesity, as defined by a body mass index (BMI = weight in kilograms divided by the square of height in metres) over 30, is significant health concern both nationally and internationally. Breast cancer is the most frequently registered cancer in New Zealand women, and obesity is a risk factor for the development of new cases in post-menopausal women. Furthermore, weight gain after surgery for breast cancer is also associated with an increased risk of relapse. A very recent study demonstrated a clear inverse association between germline DNA copy number of the AMY1 gene and risk of obesity (Nat Genet 46, 492-7, 2014). This new finding suggests a potential link between AMY1 copy number and breast cancer risk.

To assess the role of AMY1 and breast cancer risk this project will explore the correlation of AMY1 copy number and BMI of breast cancer patients. The project will also assess the molecular basis of breast cancer arising in women with differing BMI status by correlating AMY1 copy number and BMI with a range of clinical, pathological and molecular features of the tumours.

This research will build on to an established program exploring the role of genetic and molecular changes in breast cancer risk and development. The project will be conducted using data and biospecimens from our local Cancer Society Tissue Bank and the NZ Familial Breast Cancer Study.

Indicate preferred student expertise:
Science student with an interest in molecular biology and genetics and who has laboratory experience.