Case Study: METABOLOMICS 3

Research Question

Can we identify changes in acylcarnitine levels in mouse liver tissue following a high-fat diet supplemented sodium salicylate (NaS)?

Our Approach

In this study, C57BL/6J mice were fed high fat diet (HFD), HFD supplemented NaS or low-fat diet (LFD) for 24 weeks. In order to identify changes in acylcarnitines across these three groups, metabolites were extracted from liver tissue and were subsequently analysed through our targeted metabolomic platform. A total of 15 acylcarnitines were quantified. Analysis of acylcarnitine levels in the liver demonstrated a significant increase in short/medium-chain acylcarnitines (C3 and C5 length) with NaS relative to both LFD and HFD, which was indicative of enhanced fatty acid oxidation in response to NaS.

Resulting Publication: Kajani et al. (2022) Sodium salicylate rewires hepatic metabolic pathways in obesity and attenuates IL-1β secretion from adipose tissue: The implications for obesity-impaired reverse cholesterol transport. *Molecular Metabolism*, 56, 101425.

Testimonial

"Access to the metabolomics core and Lorraine and Xiaofei's expertise was critical for my group to address reviewer's comments for a recent manuscript which was subsequently accepted. The additional metabolomics data greatly strengthened the paper - equally help from Lorraine in analysing and interpreting the data was invaluable!"

Dr Fiona McGillicuddy

UCD School of Medicine
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Contact details:
Professor Lorraine Brennan
Director, Metabolomics Core
T: (+353-1) 7166815
E: lorraine.brennan@ucd.ie

CORE TECHNOLOGIES
at UCD Conway Institute

UCD DUBLIN