

## Job Description

### PhD Student in Systems Biology:

#### Complementary feeding to nourish the microbiome that supports immune health)

The PhD project will focus on complementary feeding strategies for the human microbiome in early life to develop nutritional interventions that support sustained immune health. The project will integrate omics data from multiple platforms, so a “systems biology” approach to visualise and interpret changes in biological pathways and networks in the infant based on “microbiomics” and metabolomics analyses. The project will complement clinical nutritional studies with infants that our collaborators will undertake at the University of Auckland.

In order to be eligible for this position the candidate must meet the Massey University criteria for enrolment in a PhD programme. This includes:

- A relevant Masters or Honors degree (e.g. in biochemistry, chemistry, physiology, microbiology or clinical nutrition)
- Excellent written and oral communication skills (IELTS score of 6.5 required if English is not first language)

The PhD student’s duties will include:

- Completing relevant Massey University course(s) deemed necessary by supervisors (depending on previous experience)
- Presenting a research seminar and written report to gain confirmation of PhD programme registration one year after starting
- Meeting regularly with supervisors to discuss plans and results
- Presenting plans for research and experimental protocols to supervisors for review prior to carrying out
- Work with the clinical team at the University of Auckland to obtain the human samples for global metabolome profiling and microbiota composition and functional analyses
- Carry out microbiota analyses from human faecal samples
- Carry out MS and/or NMR analyses of plasma metabolomes from human samples
- Learn and work with a range of software packages that include those with command line interfaces to integrate ‘omics data’
- Carry out data analysis, including statistical and bioinformatics analyses
- Writing a PhD thesis, including an extensive literature review, 3-5 research chapters and a general discussion
- Submitting manuscripts to journals, including a mini-review article and at least two research articles, before the thesis is submitted
- Complying with Health and Safety Policies as set by AgResearch, and at all times have consideration for the safety of themselves and others in the workplace
- Ensuring legislative compliance (e.g. Department of Labour, HSNO, EPA Animal Ethics) and appropriate data security.

The PhD student will report to Prof Nicole Roy, Principal Scientist and Food Nutrition & Health Science Team Leader at AgResearch and Principal Investigator in the Riddet Institute Centre of Research Excellence. Other supervisors will include Drs Karl Fraser and Wayne Young from AgResearch, as well as Prof Warren McNabb (Chief Supervisor, Riddet Institute).