Summary about "Protocol for a nested case-control study design for omics investigations in the Environmental Determinants of Islet Autoimmunity cohort" by Oakey et al, Annals of Medicine (2023).

This paper describes the method we are using to analyse the data of the first 54 children to develop islet autoimmunity (the presence of two or more antibodies in the blood indicating the earliest stages of type 1 diabetes development) as of 31st December 2019.

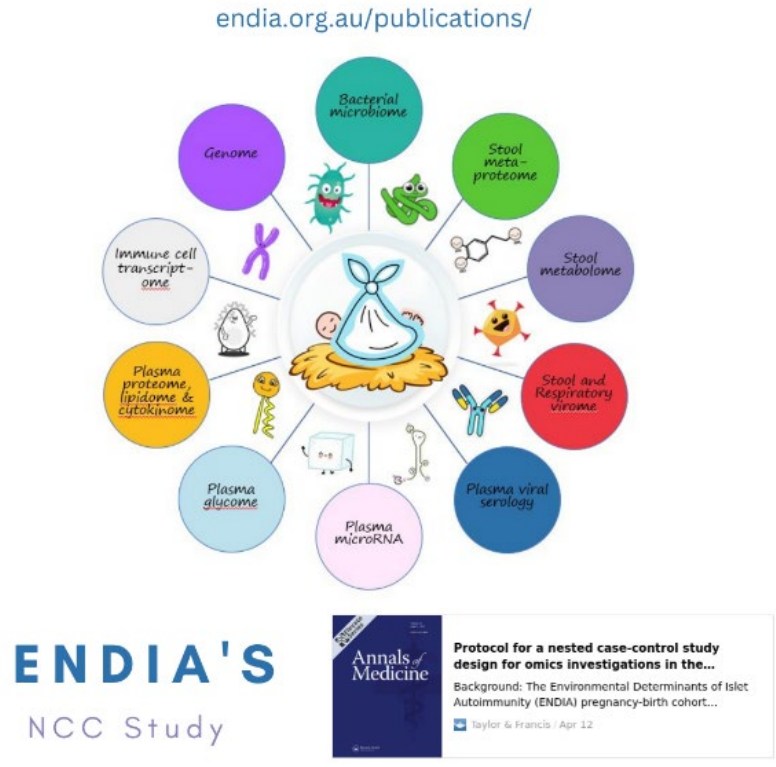
This method described is a "nested case-control" (NCC) study. The 54 children with antibodies have been matched or "buddied up" with 161 children of the same age and sex that have not developed islet autoimmunity to this time point. Some children are "buddied up" with more than one child, so their data will be used multiple times.

For the ENDIA NCC study, which involves 190 individuals at this time, we are concentrating on the internal environment and the molecular consequences that are different between the children who develop diabetes antibodies versus those who do not. The ENDIA study is interested in things like proteins, biological molecules, viruses and bacteria that may change what is happening in the immune system and cause autoantibodies and potentially T1D to develop.

The end of the name of these exposures often ends in the suffix "ome" or "omics", and this refers to the intention to measure the whole of the system – so the proteome refers to all the proteins present, the genome all genes, and the virome all the viruses, and so on.

Approximately 16,000 samples from the children in the NCC study, and their mothers, collected over their ENDIA visits, will be analysed to see what they contain. The aim is to compare the internal environmental exposures in children with and without islet autoimmunity so we can find key factors that might change over time and impact on the development of islet autoimmunity.

Stay tuned for what this study finds! We are aiming to have more papers with our findings using this method towards the end of this year and into 2024.



Read the full paper here: https://doi.org/10.1080/07853890.2023.2198255