



Application number/Title: 33672 - Association Studies of Infertility, Cardiovascular Diseases, and Type 2 Diabetes

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Keywords provided by the Applicant PI to describe the research project:

Diabetes, Cardiovascular diseases, Infertility, Meta-analysis

Application Lay Summary:

1a: We aim to verify various disease associations we see in isolated populations to those in UK Biobank. The main research problems we plan to investigate are:

1) Do the genetic variants associated with type 2 diabetes and cardiovascular diseases in the Andean and the Inuit populations also show a significant association in the UK Biobank samples?

2) Do the genetic variants associated with infertility in Chinese populations also show a significant association in the UK Biobank samples?

3) How do certain phenotypes interact with each other? How do we best control for interactions among phenotypes in association studies?

1b: Identification of genetic variants related to type 2 diabetes, cardiovascular diseases, or infertility will help researchers develop better methods to detect and target these conditions for treatment. Furthermore, studying differences in disease associations among different populations will help researchers develop population-specific methods in detecting, preventing, and treating conditions of interest.

1c: We will conduct genome-wide association studies on the UK Biobank samples to identify genetic variants associated with phenotypes related to type 2 diabetes, infertility, and cardiovascular diseases. We will compare the results to the

variants identified in the Andean, Inuit, and Chinese populations to verify the associations found in these populations and investigate potential differences between populations.

We will also conduct a meta-analysis to study the interactions between different phenotypes, which would help us define and control interacting terms in our associations studies.

1d: We would like to request access to the full cohort.