



Application number/Title: 22881 - Causal relationships between infectious and non-communicable/ common disease

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Funding body: National Institutes of Health (NIH)

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

Diabetes, mendelian, heart disease

Application Lay Summary:

1a: Many non-communicable diseases (e.g., Type 2 diabetes [T2D] and heart disease) are the most burdensome diseases in the world and are caused by the interplay between environmental exposures and inherited genetic factors. An omni-present exposure includes bacterial agents, such as *Helicobacter Pylori* (H.Pylori), and viral agents, such as human immunodeficiency virus (HIV). In this investigation, we aim to test whether genetic susceptibility to infection is associated with disease, such as T2D and heart disease (including stroke), and risk factors for these diseases such as body mass index (BMI), cholesterol, and inflammatory biomarkers.

1b: Our research is focused on deciphering the risk factors for type 2 diabetes, and heart disease. This focus is in-line with the UK Biobank's vision of improving the prevention, diagnosis and treatment of a wide range of serious illnesses which include diabetes and heart disease.

1c: We will associate genetic variants for susceptibility of infection with common diseases including time to type 2 diabetes. We will also associate variants with body mass index, blood pressure, and other biomarker risk factors for diabetes such as hemoglobin A1C, cholesterol. First we will collect variants that have been previously associated with infectious disease in the GWAS catalog. Second, we will test, using GWAS arrays on the UK Biobank participants, associations between infectious disease SNPs with the time-to-disease.

1d: Full cohort.