



Application Number / Title: 20272 - GWAS of kidney function related traits and kidney disease

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Keywords provided by the Applicant PI to describe the research project: CKD, albuminuria, eGFR, kidney, GWAS

Application Lay Summary:

1a: Chronic kidney disease (CKD) is a major health issue associated with cardiovascular outcomes. To expand the knowledge of its biological basis, large-scale meta-analyses of genome-wide association studies (GWAS) of renal function have already been conducted, but much unexplained heritability remains. The aim of the proposed research is to carry out GWAS of kidney function related traits and kidney disease, and to characterize known genetic risk loci in a large sample size for context-specific effects. We aim to analyze the UKBB data by itself and meta-analyze it with data from other cohorts and the CKDGen Consortium.

1b: CKD is a major health issue affecting >10% of adults in many countries worldwide. By finding genetic susceptibility loci we will increase our knowledge of biological and functional pathways underlying impaired kidney function. This knowledge will eventually support the improvement of the prevention, diagnosis and treatment of kidney diseases.

1c: We will check genetic markers across the whole human genome for association with kidney function measures estimated based on serum creatinine and urinary albumin-to-creatinine ratio, kidney disease, and decline of renal function over time. By revealing associated genetic loci and genes, we will obtain insight into the biological functions that may cause kidney diseases. This knowledge will eventually help to improve the prevention of the disease, and the design and development of drugs for the condition.

1d: Full cohort with available genetic data (imputed Axiom Genotyping Array data)