



Application number/Title: 37072 - Comprehensive genome-exposome-phenome association studies for complex diseases

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

association-studies, biomarkers, complex-diseases, imaging

Application Lay Summary:

A comprehensive study on the risk factors of common diseases, including hypertension, diabetes, heart diseases, stroke, cancers, and psychiatric disorders, is lacking. In this study, we will identify the correlations between the participants' genetic backgrounds / environmental exposures and the risk of developing common diseases. We will also associate genetic and environmental factors with participants' blood and urine assay, and medical imaging results (such as MRI and bone density), which is expected to quantify the molecular and anatomical impact of the exposures. We expect to complete the proposed project in 36 months.

Our project aims at identifying the associations between genotypes, environmental factors, and complex diseases systematically. Our objectives are aligned with UK Biobank's goal to improve the prevention, diagnosis, and treatment of a wide range of serious and life-threatening illnesses.