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Summary of research

Key words: cognition, intelligence, ethnicity, mood, comorbidity, genes

Application Lay Summary:

1a: The primary aim of this research is to identify genetic associations with cognitive function (specifically prospective memory, pairs matching, fluid intelligence, reaction time, and forward digit span).

We are also requesting data (on approximately 300,000 participants) which will be conducted in an additional wave of web-based cognitive testing. This includes a repeat of the baseline tests above, plus two new tests of visual attention (trail-making) and complex processing speed (digit-symbol substitution).

1b: This project is linked to previous analyses our team have undertaken on Biobank data and meets Biobank's stated purpose of improving the prevention, diagnosis and treatment of illnesses by identifying genetic risk factors for cognitive functions (prospective memory, pairs matching, fluid intelligence, reaction time, and forward digit span). Insights from this work will lead to a better understanding of cognitive performance in these domains and will potentially be useful for understanding genetic risk factors for conditions such as

dementia and/or other forms of memory impairment (for example, cognitive impairments related to conditions such as depression or diabetes).

1c: This work will consist of genome-wide association studies (GWAS), making use of data from the UK Biobank genotyping project.

1d: These GWAS studies on cognitive function (prospective memory, pairs matching, fluid intelligence, reaction time, and forward digit span) will make use of phenotypic and genetic data on all Biobank participants (the full cohort). We are requesting data for all Biobank participants and approval to use the dataset requested as part of application 6553 to conduct this research.