



Application number/Title: 44261 - Fine-scale reconstruction of population structure and Admixture Mapping in British and South Asian populations

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Keywords provided by the Applicant PI to describe the research project: admixture mapping, disease associations, genetics/genotyping, human adaptation, population structure

Application Lay Summary:

The goal of this proposal is to leverage population structure to identify new loci of disease associations and targets of selection in British and South Asian populations. Recent studies have shown that both British and South populations have ancestry from ancient local hunter-gatherers, Iranian-farmers and Steppe-Pastoralists. In this proposal, we aim to develop new machine learning methods to characterize ancestry at each position in the genome (i.e., local ancestry) and leverage this structure to localize disease variants or targets of selection. To this end, we will systematically search for genomic regions where there is a significant excess of a particular ancestry in the present-day populations and test whether the region is associated to any phenotypes. Application of these methods to rich UK Biobank dataset will reveal novel associations and deepen our understanding of population history and genetic architecture of complex traits.