FiMAP: A fast identity-by-descent mapping test for biobank-scale cohorts
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Sparse Local Identity-by-Descent Matrices for Association Mapping

Identity-by-descent (IBD) segments shared from a common ancestor can be used in association mapping to identify genomic regions associated with complex traits. At each specific genetic location, IBD segments shared between individual pairs out of hundreds of thousands of individuals cohorts form a sparse local IBD matrix, which can be used to test the association with complex traits. Here several sparse local IBD matrices at different genetic locations are shown. A fast IBD mapping test can be applied to these matrices on the genome-wide scale.

Image Credit: Han Chen