Enhancing QTL detection power in multiparental populations

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We present a strategy to enhance power to detect QTL in multiparental populations. We leverage position and allele effect information for individual traits in one population to increase power to detect similar associations in the same population or a second multiparental cohort. We demonstrate our approach in studies with Diversity Outbred (DO) and Collaborative Cross (CC) mice. We complement our analyses with simluation studies to assess statistical power to detect QTL. We discuss applications for this approach in high-dimensional expression QTL studies and for joint analysis of CC and DO mice.