Population genetic structure of Peninsular Malaysia Malay sub-ethnic groups.

Abstract

Patterns of modern human population structure are helpful in understanding the history of human migration and admixture. We conducted a study on genetic structure of the Malay population in Malaysia, using 54,794 genome-wide single nucleotide polymorphism genotype data generated in four Malay sub-ethnic groups in peninsular Malaysia (Melayu Kelantan, Melayu Minang, Melayu Jawa and Melayu Bugis). To the best of our knowledge this is the first study conducted on these four Malay sub-ethnic groups and the analysis of genotype data of these four groups were compiled together with 11 other populations' genotype data from Indonesia, China, India, Africa and indigenous populations in Peninsular Malaysia obtained from the Pan-Asian SNP database. The phylogeny of populations showed that all of the four Malay sub-ethnic groups are separated into at least three different clusters. The Melayu Jawa, Melayu Bugis and Melayu Minang have a very close genetic relationship with Indonesian populations indicating a common ancestral history, while the Melayu Kelantan formed a distinct group on the tree indicating that they are genetically different from the other Malay sub-ethnic groups. We have detected genetic structuring among the Malay populations and this could possibly be accounted for by their different historical origins. Our results provide information of the genetic differentiation between these populations and a valuable insight into the origins of the Malay sub-ethnic groups in Peninsular Malaysia.

Keyword: Molecular population genetics; SNP; Malays; Peninsular Malaysia.