

Allelic variations within genes coding for cytokines among Orang Asli in Peninsular Malaysia: New candidate genes for future disease studies

Cytokines are a set of low molecular weight proteins/glycoproteins secreted by almost all types of cells. They regulate cell growth, immune response and blood cell development in the bone marrow. Genetic variations in cytokine genes include single nucleotide polymorphisms (SNPs) and some of them have been shown to influence their level of expression as proteins. Some SNPs are associated with bodily response to infectious diseases, in relative risk of graft rejection and graft-versus-host disease in transplant patients and in prognosis for some cancers. These cytokine gene SNPs vary in frequency around the globe and have become good candidates for population and disease association studies.

Our work on genotyping cytokine genes among Orang Asli groups/subgroups in Peninsular Malaysia showed the ancestral fractions in the complex genepools of Orang Asli have been obscured to some extent by past evolutionary processes including gene flow, bottlenecks and local episodes of natural selection pressure. They have become unique to this particular region, but only traces of their ancestral gene pools have that made them distinct sub-populations in Peninsular Malaysia can now be seen. Nonetheless, allelic variations in cytokine genes between Orang Asli groups/subgroups may have important consequences for their health. So, the cytokine gene SNP datasets for the six Orang Asli subgroups deposited in this study can be used as a reference standard for future studies of many different diseases in Malaysia.

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