

Interleukin 4 Polymorphism and Malaria Endemicity in Melanesia.

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Previous studies in sub-Saharan Africa have suggested the protective role of the Th-2 cytokine IL-4 in malarial disease and associations between the IL4-590T mutation and the elevated levels of *Plasmodium falciparum*-specific IgE. The frequency of the IL4-590T allele varies among geographical populations; eg. 0.14 in Japanese and 0.71 in the UK. We conducted a population-based study to investigate the distribution of the IL4-590T allele and its relation to malaria infection and disease in East Sepik of Papua New Guinea (hyper-endemic, n= 80) and on three islands in the Vanuatu archipelago: Malakula (meso-endemic, n= 272), Aneityum (hypo-endemic, n= 476) and Futuna (non-endemic, n= 138). DNA was extracted from blood spotted on filter paper collected during mass blood surveys and 200-bp fragment of the 5' -flanking region from positions -1111 to -1310 of the IL4 gene was amplified using PCR. Pyrosequencing using specific designed oligonucleotide sequences was used for genotyping IL4-590 position. IL4-590T allele frequencies were 0.39, 0.40, 0.48 and 0.42 in East Sepik, Malakula, Aneityum and Futuna respectively. The observed allele frequencies of the IL4-590T are rather consistent among the surveyed Melanesian populations but different from those reported in far Eastern Asian and European populations. We could not see any association between IL4-590T allele frequency and malaria endemicity.

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