

Does the time of occurrence of *Pfcsp* T cell epitope haplotype in a population affect the distribution pattern of predominant haplotypes within specific subpopulations in a high transmission location?

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Abstract

Single nucleotide polymorphism in *Plasmodium falciparum* circumsporozoite protein gene (*Pfcsp*) T cell epitope determines haplotype diversity thus; it may affect haplotype distribution in different populations. *Pfcsp* T cell epitope haplotype diversity increases over time but its distribution in target subpopulations remains unknown. To assess the pattern of haplotype distribution and its age in a population; haplotypes and their frequencies were identified in children with uncomplicated malaria placed in two age groups. Haplotype evolutionary history was then determined. This paper suggests the effect of increase in haplotype diversity over time on its distribution pattern in intense transmission regions. A high genetic diversity was observed from 52 sequences (0.923) resulting in 24 haplotypes; nine haplotypes were unique to this study population. Four haplotypes accounting for 48% were predominant in the general population (Cam1065-(17.3%), Gm06-(11.5%), Cam1028-(9.6%) and E12-(9.6%)); Gm06 was common in < 5 years age group ($p=0.0299$) and Cam1028 in the 5-11 years age group ($p=0.0243$). The two age groups showed different predominant haplotypes ($p = 0.0000002$) which seems to occur differently in the population. Cam1065, Gm06 and 7G8 predominant in the < 5 years category seems to be older in the population than Cam1028, E12 and Ken426 predominant in the 5-11 years group (Middle vs top of a rooted phylogenetic tree). There appears to be a time-dependent age distribution pattern of predominant *Pfcsp* T cell epitope haplotypes in intense transmission areas. This emphasizes the need for continued exploration of haplotype distribution patterns and its effects in intense transmission regions.

Biography

Nabi M Nge has completed her MSc from the University of Westminster, London, in 2005 and currently, pursuing her PhD in the University of Calabar, Nigeria. She is a Research Associate in the Cameroon Society for Quality Analysis/Diagnosis, Rural Development Management (CSQARDEM). She has published two articles in reputed journals.

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