

Genetic markers and age in the Tsimane of Bolivia

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The Tsimane of lowland Bolivia are an indigenous forager-farmer population living under conditions similar to pre-industrial European populations with high infectious morbidity, limited diets, and short life expectancy. Studies suggest that within and between population differences in genetic distributions are linked to environmental conditions, such as evolved responses to pathogen burden (Pennington et al., 2009). For the Tsimane, it may be that the strong force of mortality due to the high impact of infection at earliest ages may disproportionately affect individuals with a given genetic predisposition geared towards combating infection at young ages. To test this, we examine the age-associated prevalence of allele and genotype distributions of single nucleotide polymorphisms associated with apolipoprotein E (apoE), C-reactive protein (CRP), and interleukin-6 (IL-6) in the Tsimane age 5-90. The presence of an apoE4 allele generally increased with age, while the distribution of pro-inflammatory genotypes of the CRP and IL-6 associated SNPs varied little with age. These results suggest that high exposure to infection may influence the force of selection of some genetic variants in the Tsimane.