

Lack of an anti-parasitic effect of human chitotriosidase genotype in a malaria- and hookworm endemic region of Papua New Guinea

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Human chitotriosidase is a chitinase synthesized by activated macrophages. In European Caucasian populations there are 6% homozygous chitotriosidase mutants, 34% heterozygous carriers and 60% homozygous wild types. A previous study from Benin and Burkina Faso, both endemic for *P. falciparum* malaria and intestinal parasite infections, showed no homozygous mutants and significantly reduced heterozygotes. Another study from an area endemic for bancroftian filariasis in South India has indicated potential protection against filariasis by the wildtype gene, but this was not confirmed by a later study in Papua New Guinea. In the present study, 700 individuals from the Madang Province of Papua New Guinea, where *N. americanus* and *P. falciparum* are endemic, were genotyped for chitotriosidase. The percentage of individuals with different genotypes was almost identical to that seen in Caucasian populations, suggesting that chitotriosidase does not have a critical role in preventing mortality. Additionally, there was no significant correlation between *N. americanus* egg loads or malaria and the mutation.