

Association of malaria with inactivation of α 1,3-galactosyl transferase in catarrhines

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Abstract

Present-day catarrhines (old world monkeys and hominoids) lack Gal α 1-3 Gal β 1-4 GlcNAc-R structures (α -galactosyl epitopes) and produce the corresponding anti-galactosyl antibodies (anti-gal), while platyrrhines (new world monkeys) and non-primate mammals possess α -galactosyl epitopes and lack anti-gal. Anti-gal is shown to inhibit *Plasmodium falciparum* growth in culture in a concentration dependent manner, probably by binding to α -galactosyl epitopes on merozoite surface molecules and causing complement mediated damage. A *P. falciparum*-like malaria parasite may therefore have selected for the inactivation of an α 1-3 galactosyl transferase in catarrhines. The implications of the results for the development of clinical immunity to falciparum malaria are briefly discussed.

Keywords: Anti-galactosyl antibody; α -Galactosyl epitope; Galactosyl transferase; Malaria; Primate evolution; (*Plasmodium falciparum*)
