Malaria transmission in Ghana: Parasite and host affect

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The transmission of malaria parasites depends on the presence of the sexual stages (gametocytes) of *P. falciparum* in the blood. The probability of establishing an infection in the mosquito depends on several factors including the densities of male and female gametocytes as well as their sex ratio. This then makes it interesting to determine how gametocytes are rendered infectious as well as understand the dynamics of the development of transmission blocking antibodies which are developed against these gametocytes and also better understand how these work together to cause malaria transmission. Our objectives are: 1) To compare the prevalence of gametocytes and transmission blocking antibodies against Pfs48/45 and Pfs230; and 2) to determine cytokines profile which also influence malaria transmission in two areas with different malaria transmission intensities. Blood samples were collected from *P. falciparum* infected and uninfected patients living in two different malaria transmission intensity. Total IgG (and subclasses IgG1 and IgG3) and IgM levels are determined by ELISA. The levels of cytokines in the plasma (TNF, INF-γ and IL-10) are estimated by multiplex antibody. Gametocyte prevalence is measured by microscopy and qRT-PCR. Preliminary results show a variable prevalence of antibody responses against these sexual stage Pfs48/45 and pfs230 antigens. The prevalence of anti pfs230 antibodies is significantly higher in volunteers living in high malaria transmission area. However, cytokines profiling is negatively correlated with anti pfs230 antibodies production. It would be interesting to perform a correlation analysis between the effect of the prevalence of gametocytes (in progress) and the production of antibodies and cytokines.

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