

Crete Abstract

Determinants of vectorial competence of mosquitoes for *Plasmodium* species.

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Numerous classical studies have established that individual malarial parasite species are normally transmitted only by a relatively small range of insect vectors, the parasites of humans being transmitted by anopheline mosquitoes. The technical limitation of these early studies to observations on the production of oocysts or sporozoites however has provided little information as to the timing and molecular basis of the underlying vector-parasite incompatibilities. New observations on the induction and completion of gametogenesis, and on ookinete invasion of the midgut wall have provided a broader framework to our understanding of malaria-mosquito interactions. New data will be presented on the development of *Plasmodium gallinaceum* and *P. berghei* in *Anopheles stephensi*, *A. gambiae* and *Aedes aegypti*. In all parasite-vector combinations studied parasite losses are multi-factorial, originating in the bloodmeal, the midgut epithelium, the haemocoel and during salivary gland invasion. These losses have been measured. They are usually very significant (500-100,000 fold reductions), and may accrue to levels that prevent parasite transmission totally.