

MOLECULAR AND KINETIC ANALYSIS OF THE GLUTATHIONE S-TRANSFERASES INVOLVED IN DDT RESISTANCE IN *ANOPHELES GAMBIAE*

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Resistance to the DDT in the malaria vector *Anopheles gambiae* is associated with increased metabolism by members of the glutathione S-transferase family of enzymes. There are two classes of glutathione S-transferases in insects, class I and class II. Biochemical analysis of partially purified enzymes suggests that the class I glutathione S-transferases are primarily involved in resistance. The resistance, although inherited as a single major gene effect also involves numerous glutathione S-transferase isozymes. We have isolated cDNAs from *An. gambiae* which code for several members of the class I family. Two of these enzymes have been expressed in *E. coli* and metabolism studies on the expressed proteins have demonstrated that these enzymes are able to metabolise DDT. Sequencing of the genomic DNA indicates that the class I genes are arranged sequentially on the chromosome. *In situ* hybridisation to the polytene chromosomes also shows that the GST class I family occurs at a single location in the genome.