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### ***Anopheles gambiae* anti-*Plasmodium* responses**

*Anopheles gambiae* has a multifaceted innate immune system that comprises a diverse pattern recognition system, signal transduction and amplification cascades and effector mechanisms that attenuate pathogens.

Global gene expression analyses of *A. gambiae* responses to *Plasmodium* infection in combination with RNAi-based gene function screening have been used to identify a panel of anti-*Plasmodium* factors. Relations between the mosquito's anti-*P. berghei*, anti-*P. falciparum* and anti-bacterial defense systems have been assessed. Preliminary analyses suggest the existence of both universal and *Plasmodium* species specific mechanisms that can modulate the parasite's development in the mosquito.

### ***Anopheles gambiae* pathogen recognition system**

The capacity of insects to recognize a broad spectrum of pathogens with a relatively limited number of pattern recognition receptor genes is intriguing. Molecular analyses of *A. gambiae* pattern recognition receptor gene regulation and evolution suggest that alternative splicing and combinatorial multimerization may be utilized by mosquitoes, and other insects, to expand their pattern recognition repertoires and cope with a diverse microbial exposure.