

“The molecular mechanisms of 'kidney' function in mosquitoes: towards novel vector control strategies”.

Mosquitoes are vectors of numerous pathogens that cause diseases of great importance to global health, such as malaria and dengue fever. In most cases, the primary means for limiting the spread of mosquito-borne diseases is via control of the vector using conventional insecticides that target the nervous system. However, the development of resistance to these control agents in mosquitoes has greatly reduced their efficacy. Thus, there is an urgent need to discover novel molecular and physiological targets for the development of new insecticides. The research presented here will discuss our efforts to disrupt the renal excretory physiology of mosquitoes, which is mediated by the Malpighian tubules, using small molecule inhibitors of potassium channels. The potential of developing such inhibitors as novel insecticides that elicit ‘kidney’ failure in mosquitoes is discussed.

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