Insecticide resistance genes affect vector competence for West Nile virus

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"We provide the first evidence of the impact of two main mechanisms of insecticide resistance on arbovirus transmission," says Anna-Bella Failloux, Head of the Arboviruses and Insect Vectors laboratory at the Institut Pasteur.

"Using experimental infections, we compared the vector competence of insecticide-resistant and -susceptible Culex quinquefasciatus mosquitoes (target modification and overproduction of detoxification enzymes) to two arboviruses, Rift Valley fever virus (RVFV) and West Nile Virus (WNV)." For RVFV, vector competence remains unchanged whether the mosquito is resistant or susceptible. However, resistant mosquitoes transmit better WNV than susceptible mosquitoes.

"Our results underscore the importance of understanding the effects of insecticide resistance on vector competence and require reconsidering vector control strategies by limiting the production of insecticide-resistant mosquitoes."


Provided by Pasteur Institute