

Mosquito-specific viruses interfere with Culex-borne arboviruses

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Mosquito-specific viruses (MSVs) exclusively replicate within mosquitoes and can disrupt arbovirus infections by persistently infecting mosquitoes throughout their lifespan or multiple generations. MSVs exhibit a widespread presence in mosquito populations, including Germany, yet their impact on Culex-borne arboviruses currently circulating in Europe remains largely unexplored.

First, we determined the susceptibility of the “recently” created Culex pipiens cell lines for different MSVs and arboviruses. Secondly, we conducted co-infections of different Culex-derived cells with various MSVs and arboviruses from different families. In summary we found that the infection phase (acute or persistent) of the MSVs greatly affected the rate of arbovirus infections. A consistent negative effect was observed on both Semliki Forest virus and Bunyamwera orthobunya virus when using Eilat virus as an MSV; with the persistent phase demonstrating the most pronounced impact on this different arbovirus replication.

By studying the effects of different MSVs, this research enriches our understanding of MSV-mediated interference and its potential implications in combating mosquito-borne arboviruses.

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Mosquito-specific virus, culex-borne arbovirus, BUNV, SFV, co-infection, Culex pipiens

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Professional Status of the Speaker

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Junior Scientist Status

Yes, I am a Junior Scientist.

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