The susceptibility of wild rodents for Rift Valley fever virus and their potential role in the maintenance of the virus

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Rift Valley fever virus (RVFV) is a zoonotic arbovirus affecting humans and various other vertebrates, primarily domestic ruminants. The disease is characterized by a high mortality in young animals and spontaneous abortions. RVFV is transmitted by mosquitoes of several genera as main vectors of the virus. Infections of humans additionally occur after exposure to tissue of infected animals or by inhalation of contagious aerosols. Epidemics of Rift Valley Fever appear cyclical and are usually correlated to heavy rainfall or inundations that are followed by the abundance of vector-competent mosquitoes. During inter-epidemic periods the virus is maintained between vertically infected vectors and a yet unknown vertebrate reservoir. Wild rodents are suspected to play an important role in this epidemiologic cycle and it has been shown in numerous studies that several mouse and rat genera are susceptible to the disease. To elucidate more precisely the role of common African rodent species as reservoir hosts for RVFV, an experimental infection study on *Rattus rattus* will be performed with three different RVFV-strains, isolated from mosquitoes, humans and ruminants. Through a close meshed sampling scheme, potential virus shedding and the possibility of a horizontal transmission as well as the immunological and pathological reaction of the host organism will be evaluated. In a second experimental study other rodents like *Aethomys*, *Arvicanthis*, *Thryonomys* will be infected comparatively. The results will be analyzed subsequently to determine their possible role in the maintenance of RVFV. Additionally, an *in-vitro* approach, using different rodent cell lines should confirm and complement *in-vivo* results.

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