



186 TRANSMISSION OF RIFT VALLEY FEVER VIRUS BY THE SAND FLY, PHLEBOTOMUS DUBOSQI. M.J. Turell* and P.V. Perkins. Department of Arboviral Entomology, USAMRIID, Fort Detrick, Frederick, MD and Department of Entomology, Walter Reed Army Institute of Research, Washington, D.C.

Studies were conducted to determine if the sand fly, Phlebotomus dubosqi, could serve as a vector of Rift Valley fever (RVF) virus. All sand flies became infected after intrathoracic inoculation, and all (31/31) feeding, inoculated flies transmitted RVF virus to hamsters. After feeding on a hamster with a RVF viremia (ca. 10^9 PFU/ml of blood), 50% (72/145) became infected, and 80% (4/5) of sand flies with a disseminated infection (i.e., virus recovered from their legs) transmitted virus by bite. This is the first demonstration of oral transmission from animal to animal of RVF virus by a phlebotomine sand fly. None of 331 progeny of inoculated sand flies or 230 progeny of orally exposed sand flies contained virus. These studies demonstrate the potential for sand flies to serve as a vector of RVF virus in Africa and become involved in the natural transmission cycle of this virus.

187 CRIMEAN-CONGO HEMORRHAGIC FEVER IN SENEGAL: TEMPORAL AND SPATIAL PATTERNS OF INFECTION RELATED TO VECTOR BIOLOGY.

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Transmission of Crimean-Congo Hemorrhagic Fever virus appears to be enzootic in Senegal, however the ecological factors that influence the temporal and spatial dynamics remain obscure. Our studies have shown that the geographic distribution of infection is correlated with the distribution of certain vector tick species. Studies of tick abundance have demonstrated large seasonal and annual variation. Prospective sampling of individually-identified domestic animals has exposed an epizootic that occurred during a period when adult *Hyalomma* ticks were unusually abundant. Different forms of frequency distributions of antibodies correlated with other indicators of virus circulation. Maternal transmission, detected in most offspring of seropositive sheep, may destabilize, temporally, horizontal transmission. Additionally, we studied the development and duration of antibody titers among experimentally and naturally infected animals. IgM titers developed within days after infection and persisted for weeks or months. IgG titers rose similarly, but remained detectable for up to 5 years. Other studies of the feeding pattern of *H. truncatum* demonstrated host specific variation in the length of feeding and diurnal pattern of detachment. Certain effects on the maintenance of transmission are discussed.

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