

this medically important sand fly species. Nocturnal activity of *Lu. longipalpis* was studied in El Callejon, Colombia, a highly endemic focus of AVL. On 2-3 consecutive nights each month during the period from August 1991 to July 1992, hourly samples of adult sand flies were collected off cattle and from the walls of a pigpen. Climatic factors were monitored during each collection. Analysis of variance was used to evaluate differences in *Lu. longipalpis* relative abundance. In the pigpen, peak sand fly activity occurred between 2030-2230, then it diminished steadily until 0630; the ratio of females to males was 3:1 at 1730, ranged from 1:1.25 to 1:20 from 1830-0130, and then inverting again after 0130. In contrast, the sand flies remained active between 1830 and 0530 on cattle; males always outnumbered females from 5-35 fold. Adult *Lu. longipalpis* activity was significantly reduced at ambient temperatures <24°C or >30°C and at relative humidities >90%. Windspeed, rain and light intensity also appeared to be influential environmental factors affecting sand fly activity.

606 NATURAL POPULATIONS OF *Aedes albopictus* FROM SOUTHERN THAILAND ARE PERSISTENTLY INFECTED WITH AN INHERITED GROUP III DENSOVIRUS. Kittayapong P*, Tesh RB, Braig HR, Gonzalez JP, and O'Neill SL. Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, CT; Department of Biology, Faculty of Medicine, Mahidol University, Bangkok, Thailand; and Institut Francais de Reserche Scientifique pour le Developpement en Coop, Paris, France.

A diagnostic PCR based assay for identifying Group III densoviruses was applied to recently colonized *Aedes albopictus* from southern Thailand. A previously undescribed densovirus was identified with this assay and phylogenetic analysis of the virus was performed using sequence data. On the basis of this analysis the virus appears distinct from previously identified densoviruses from mosquito cell lines. Instead it groups more closely to a densovirus recently described from Russia infecting *Ae. aegypti*. This newly discovered virus is avirulent to *Ae. albopictus* and appears to be maintained as a stable inherited extrachromosomal element within the mosquito colony. As such, it appears to be an ideal candidate for development as a vector for expressing genes conferring refractoriness to disease transmission within mosquitos. Its extrachromosomal inheritance also makes it compatible with described genetic mechanisms (eg. cytoplasmic incompatibility) for rapidly spreading it into natural mosquito populations.

607 TRANOVARIAL TRANSMISSION OF ARBOVIRUS IN *Aedes albopictus* MOSQUITOES CONCURRENTLY INGESTING MICROFILARIAE OF *Dirofilaria immitis*. Zytoon EM*, El-belbasi HI, and Matsumura T. Department of Medical Zoology, Kobe University, School of Medicine.

Vertical transmission of viruses; i.e., direct transfer from parent to progeny, can occur in arthropods by a variety or mechanisms, including transovarial transmission (TOT). Evidence from our previous studies indicates the probable dissemination of chikungunya (CHIK) through the legs and salivary glands of *Aedes albopictus* mosquitoes concurrently ingesting microfilaria (Mf) of *Dirofilaria immitis*. To determine the possible method of TOT of CHIK in mosquitoes concurrently ingesting Mf, two groups of *A. albopictus* mosquitoes were fed defibrinated sheep blood containing 5×10^7 PFU of an African strain of CHIK virus, with or without 20,000 Mf of *D. immitis*. After embryogenesis of the eggs was complete, half of the total number of eggs were immersed in water to induce hatching, and the other half were kept under the same insectary condition as before being assayed for virus titers. The virus was detected in the parent mosquitoes, eggs, pupae and F1 of the first ovarian cycle, and F2 of the second ovarian cycle. The control group that ingested virus alone did not have virus titer at any of the stages examined. This TOT may make overwintering of arbovirus possible, and appear to be an efficient mechanism that could insure the survival of the viral agent during adverse environmental conditions in general.

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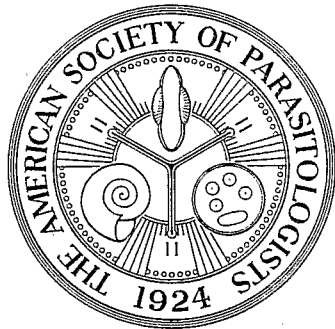
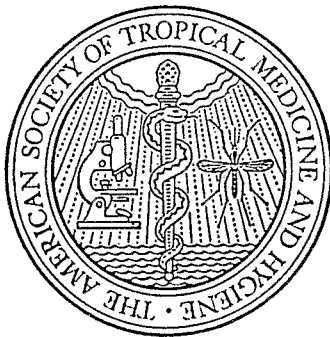
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PROGRAM AND ABSTRACTS OF THE
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OF THE AMERICAN SOCIETY OF
TROPICAL MEDICINE AND HYGIENE
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