248 EFFECTS OF INITIAL DOSE ON EASTERN EQUINE ENCEPHALITIS VIRUS DEPENDENT MORTALITY IN INTRATHORACICALLY INOCULATED *CULISETA MELANURA* MOSQUITOES. Cooper LA*, Sina BJ, Scott TW, and Turrell MJ. Department of Entomology, University of Maryland, College Park, MD; Department of Entomology, University of California, Davis, CA; and Virology Division, USAMRIID, Fort Detrick, Frederick, MD.

Viral growth characteristics which favor rapid and prodigious virion production may increase virus transmission but be detrimental to infected hosts. Several arboviruses, including Eastern equine encephalitis (EEE) virus, are known to decrease the survival of their infected mosquito vectors. To test the hypothesis that the mosquito virulent properties of the EEE virus reflect the presence of intrinsically virulent viral growth patterns, we investigated the effects of initial dose on the daily survival of intrathoracically inoculated *Culiseta melanura* mosquitoes. The survival of age matched females inoculated with either a low dose of $10^{1.5}$ plaque-forming units (PFU) per mosquito or a high dose of $10^{5.5}$ PFU per mosquito was monitored for eight weeks. When compared with diluent inoculated controls, mosquitoes from both dosage groups displayed highly significant survival decreases (Kruskal-Wallis, $p<0.001$). However, no significant differences in daily survival were detected between the two infected groups. Virus production within inoculated mosquitoes was assessed by sampling mosquitoes every twelve hours for 96 hours post-inoculation. Rapid virus amplification occurred in both dosage groups, and by 24 hours post-exposure the mean viral loads of low dosage mosquitoes were comparable to those of the high dosage group. Likewise, by 72 hours post-inoculation, no significant differences in virus transmission were detected between the two exposure groups. These results suggest that the virulence of the EEE virus for its endemic North American mosquito vector is not dosage dependent and may reflect the inherent growth properties of this virus within infected mosquitoes.

249 *ANOPHELES FUNESTUS* IN SENEGAL, ONE SPECIES OR SIBLING SPECIES ? Lochouarn L, Dia I, Boccolini D, Coluzzi M, and Fontenille D*. Laboratoire ORSTOM de Zoologie Medicale, Institut Pasteur, Dakar, Senegal; Departement d e Biologie Animale, Universite Cheikh Anta Diop, Dakar, Senegal; Istituto Superiore di Sanita, Rome, Italy; and Istituto di Parassitologia, Universita di Roma "La Sapienza", Rome, Italy.

Malaria is one of the major public health problems in Africa. *Anopheles funestus* Giles, 1900, is one of the three major vectors of malaria in Africa, together with *An. gambiae* and *An. arabiensis* from the *An. gambiae* complex. Contrary to *An. gambiae* few studies have been undertaken on a molecular basis of vectorial capacity and on population genetics of *An. funestus*, despite it being one of the major vectors in Africa. In Senegal *An. funestus* is the most important vector in places such as Dielmo, a village in a holoendemic malaria area of Sudan-type savanna. Malaria transmission by *An. funestus* is followed up in different locations, from Western to Eastern Senegal. Mosquitoes are captured on human volunteers or by indoor-pyrethrum spraying. Studies of trophic behaviour of indoor resting An. funestus showed a high anthropophilic rate in Dielmo in Western Senegal (91 %) and a low rate in Wassadou in Eastern Senegal (32%). In the Wassadou region many females captured in bedrooms fed outside on horses. This behaviour is not classical for An. funestus. The polytene chromosome analysis, comparing five polymorphic inversions (a, b, t, u and z), showed the presence of 2 very different populations : a monomorphic standard one in Dielmo and a highly polymorphic one in Eastern Senegal. Preliminary isoenzyme analysis conducted on a small sample also showed that the Dielmo population is more homogeneous for the hexokinase system than mosquitoes from Eastern Senegal Data from Senegal on trophic behaviour, vector efficiency, cytogenetics and isozymes highly suggest at least the presence of two very different populations of *An. funestus* and maybe the presence of sibling species.

250 STUDIES ON A STRAIN OF *PLASMODIUM VIVAX* FROM INDIA IN *AOTUS* AND *SAIMIRI* MONKEYS AND CHIMPANZEES. Sullivan JS*, Morris CL, Richardson BB, Nesby SL, and Collins WE. Division of Parasitic Diseases, NCID, CDC, Atlanta GA; and Scientific Resources Program, NCID, CDC, Atlanta GA.

Adapting human plasmodia to non-human primates provides opportunities to develop models for testing vaccine candidates, and for drug, molecular and immunologic studies. The India VII strain of *Plasmodium vivax* was received as a frozen stabilate. Blood was inoculated intravenously into an *Aotus lemurinus grisiemembra* monkey; the parasite was subsequently transmitted by sporozoite inoculation to *Pan troglodytes, A. nancymai,A. azarae boliviensis, A. l. grisiemembra, A. vociferans,* hybrid *Aotus,* and *Saimiri boliviensis* monkeys. Transmission via bloodinoculation produced infections in *P. troglodytes,A. nancymai,* and *A. l. grisiemembra* monkeys. Infection was more difficult to establish in *Saimiri* monkeys than in other animals: prepatent periods for sporozoite-induced infections were longer, maximum parasitemias lower, and days to maximum parasitemia longer. Four species of anopheline mosquitoes were infected by feeding on *Aotus* monkeys and *P. troglodytes*. Based on percent infection and number of oocysts per gut, *An. freeborni* was the most susceptible mosquito species, followed by *An. stephensi, An. gambiae,* and *An. dirus*. Using the number of oocysts per infected gut, the most susceptible mosquito was *An.*

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