

## STUDIES ON FILARIASIS IN SMALL MAMMALS IN NORTHEAST THAILAND

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**OBJECTIVE :** To establish a consistently reproducible, readily available, genetically controlled laboratory animal model for the study of infection with nematodes of the Superfamily *Filariidae*.

**BACKGROUND :** The need for a consistently reproducible laboratory animal model for studies of infection with nematodes of the Superfamily *Filariidae* has been expressed (1). A mosquito-transmitted filaria - laboratory rat system would fulfill this requirement and is the ultimate goal of these studies. Limited attempts to transmit *Brugia tupaia* through mosquitoes to various laboratory animals were made at the SEATO Medical Research Laboratory (SMRL) in 1969 and 1970 (2, 3) but were unsuccessful. One mosquito-transmitted filarial parasite, *Brienlia booliati*, has been reported in Malaysia and laboratory rats have been successfully infected with this nematode at the University of Singapore (4, 5). Additionally, one report of mosquito transmission of *Brugia pahangi* to mice using *Aedes togoi* at the University of Singapore is reported (6).

A preliminary study in which 1964 wild rodents in Thailand were trapped and screened for microfilaria was undertaken by Dill, et al. (7). Results of this study revealed the presence of unreported filarial nematodes of several species. Mosquito transmission studies utilizing these new species of microfilaria were unsuccessful. Subsequent to this study, one of the new species of microfilaria has been described and named *Dunnifilaria dilli*. (8).

Last year several species of small mammals were live-trapped in the area of Pak Chong, Thailand and transported to our laboratory for further studies on identification of microfilaria and periodicity to determine the optimum time to feed mosquitoes for transmission studies. Species that were trapped and studied included *Rattus koratensis*, *Rattus rattus*, *Rattus sabanus*, *Rattus surifer*, *Menetes berdmorei*, and *Tupaia glis*. Low survivability rates among the various species of rodents rendered numbers too small to be significant in the periodicity studies.

**METHODS :** Efforts to concentrate on the new species *Dunnifilaria dilli* and *Dunnifilaria ramachandranii* were abandoned due to too few specimens to work with. A decision was made to concentrate on studying *Brugia tupaia* in the tree shrew *Tupaia glis*. Since a high percentage of *Tupaia glis* are found to be naturally infected with *Brugia tupaia*, efforts were directed toward the establishment of a breeding colony of *Tupaia glis* within our laboratory.

Sixteen (11 ♂, 5 ♀) *Tupaia glis* were live-trapped in the area of Sakaerat, Thailand and transported to our laboratory. Four females and four males were paired and placed in breeding cages that had been equipped with a specially designed nesting box.

RESULTS : As of the end of this fiscal year, no young have been born in the laboratory. Life cycle, periodicity, and transmission studies will continue when adequate numbers of *Tupaia glis* are available for study.