



# ABSTRACTS

## EURO-AMERICAN MAMMAL CONGRESS

Santiago de Compostela, 19-24 July, 1998

Editor:

**SANTIAGO REIG**

Universidade de Santiago de Compostela

WILD MAMMALS AS *LEPTOSPIRA* RESERVOIRS IN PORTUGAL

MARGARIDA COLLARES-PEREIRA and MARGARIDA SANTOS-REIS

Unidade de Leptospirose e Borreliose / CMDT, Instituto de Higiene e Medicina Tropical, R. da Junqueira, 96, 1300 Lisboa, Portugal mcp@ihmt.unl.pt (1). Departamento de Zoologia e Antropologia/CBA, Faculdade de Ciências, Campo Grande, C2, 1600 Lisboa, Portugal ffonseca@fc.ul.pt (2)

A total of 725 rodents, insectivores and small carnivores, either from mainland or Azorean Islands, was analysed, to evaluate the specific role of wild mammals as major natural reservoirs of pathogenic leptospires\*. To achieve this objective, isolation through kidney culture and serology by microscopic agglutination test (MAT) for the presence of *Leptospira interrogans* (s.l.) agglutinins were performed. All but seven isolates were identified to serogroup level. Leptospires were isolated from 100 out of 442 individuals in mainland and from 79 out of 283 in the islands. The following species were found bacteriologically infected: *Apodemus sylvaticus*, *Arvicola sapidus*, *Crocidura russula*, *Erinaceus europaeus*, *Mus musculus*, *M. spretus*, *Rattus rattus* and *R. norvegicus*. The most frequent reservoirs were *R. rattus* (50%) in mainland and *M. musculus* (34%) in Azores and the least frequent were *M. musculus* (5%) in mainland and *E. europaeus* (21%) in Azores. Isolates were identified as belonging to Ballum (n=111), Icterohaemorrhagiae (n=19) and Pomona (n=42) groups. MAT results from the majority of leptospiral hosts confirmed the presence of specific agglutinins (up to 1:10,240), against the isolated strain. The two carnivores, *Mustela nivalis* and *M. furo*, showed cultural and serological negative results. In the islands, renal carriers were widely spread, both in humanised and natural habitats. The role of rodents as *Leptospira* reservoirs is confirmed, the main carriers being *Rattus* and *Mus* genera. As described previously, transmission depended on local diversity of the small mammals. The niche expansion of the insular species, together with climatic favourable conditions, contributed to the leptospires widespreading and increased infection rates in two of the studied islands (Terceira, 46% and S.O. Miguel, 53%) when compared to the mainland results. Therefore, the studied renal carriers should be considered as potential hazards for man and domestic animals health in Portugal.

## HANTAVIRUSES IN HUNGARY: THE ROLE OF MAMMALS IN THE MAINTENANCE AND CIRCULATION OF MULTIPLE VIRUSES IN NATURE

GÁBOR RÁCZ, EMÖKE FERENCZI, GÁBOR FALUDI, and GYÖRGY BERENCSEI

B. Johan National Institute of Public Health, P.O.B. 64, Budapest H-1966, Hungary ferenczi@oki1.joboki.hu (2) (3)  
(4). Museum of Southwestern Biology and Department of Biology, University of New Mexico, Albuquerque, NM-87131, USA raczg@unm.edu (1)

Hantavirus has been known from Hungary for some time but the particular strains or species and their distributions has remained uncertain. The presence of Puumala virus from Western Hungary using RT-PCR has recently been confirmed and it appears most similar to sequences from the adjacent regions in Germany. Efforts to determine what type of Hantavirus is present in Eastern Hungary so far have been unsuccessful. However, results of investigations using serological tests point to the presence of a distinct virus. The problem is compounded in Western Hungary by the presence of tick-borne encephalitis virus (TBE), which also is endemic in certain areas. We found evidence that Hantavirus and TBE virus can co-occur in the same locality, with some animals showing signs of antibodies to both viruses. The possibility of co-occurrence or multiple infections in given localities makes simple epidemiological models rather complex and has a substantial effect on the evolution and life history strategies of both the virus and its mammalian host. This presentation will discuss the number of human HFRS cases due to Hantavirus infection and the distribution of Hantavirus in Hungary and its relationship with the distribution of bank vole (*Clethrionomys glareolus*). The potential influence of TBE on natural infection by Hantavirus will also be investigated.