

SEROSURVEY AND VIRUS ISOLATION FROM RODENTS TO DETERMINE  
THE HANTAAAN VIRUS PRESENCE IN THAILAND

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OBJECTIVES :

1. To identify areas in Thailand where rodents have antibody for Hantaan virus.
2. To test human sera from areas with rodent infection to determine if there is serological evidence of human infection.
3. To isolate Hantaan virus from tissues of rodents in endemic areas.

BACKGROUND ; Recent studies have found Hantaan virus to be the causative agent of Korean hemorrhagic fever (KHF), a syndrome of significance in Korea and Manchuria and of potential significance in the USSR, the Balkans, parts of Western Europe and Scandinavia. Evidence has recently been obtained in Seoul, Korea that urban *Rattus* also are chronically infected with Hantaan virus. Cases of KHF in man have now been linked temporarily and geographically to infected wild rats in urban Seoul and Osaka, Japan. In addition, antibodies to Hantaan virus have been found in *Rattus* captured near the docks in Japan, Korea and United States. Chronic infection, rats and international shipping thus provide a likely chain which may have disseminated this virus worldwide. Thus the potential for this agent to cause human disease may be far greater and more geographically diverse than in presently appreciated.

In a preliminary survey at the International Port in Bangkok (Klong Toey), rodents were live trapped, anesthetized with ketamine and a 3-10 cc heart blood sample was obtained. Serum was separated and frozen at  $-70^{\circ}\text{C}$ . When collection was completed the samples were shipped on dry ice to MAJ LeDuc, USAMRIID, for antibody determination.

PROGRESS : In this initial survey, 5 positive sera were obtained from a total of 100 rodents trapped in the port area. Of these, 4 were obtained from a single location and all were from bandicoots (*B. indicus*), a rodent species not previously recognized to be naturally infected with Hantaan virus. The other positive sample was from a rat (*R. norvegicus*).

A follow up trapping was completed at Klong Toey concentrating on the area where four positive titers were obtained. In addition, human sera has been obtained from volunteers living in this location. The results of the titers from these sera have not been completed. In addition, rodent lung, spleen,

and kidney tissues have been frozen for future virus isolation. Also frozen rodent sera previously collected at other locations in Thailand (Korat, Nakorn Pathom, Kanchanaburi, and Bangkok) are being screened for Hantaan antibody.

**FUTURE OBJECTIVES :**

1. A trapping is planned at Sriracha and Bangpakong, another port area in Thailand. Serum and tissues will be collected for antibody determination and virus isolation.

2. If rodents with high titers or a high percentage of infection are found, human sera will be obtained from these locations.