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ANTIGENIC ANALYSIS OF HANTAVIRUSES ISOLATED  
FROM THE NORWAY RAT, *RATTUS NORVEGICUS*

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Antigenic comparison of Hantaviruses was performed among 7 Kamiiso (KI) strains, SR-11 strain of laboratory-rat origin and 4 reference strains. The KI strains used were isolates from an urban rat colony at a dumping ground in the town of Kamiiso near Hakodate Port in Hokkaido during the period from 1983 to 1988.

The antigenicity of these strains was compared using immune sera, infected rodent sera and monoclonal antibodies (MABs). In addition, the antigenic drift of the 7 KI strains was examined. Serological tests used were the indirect immunofluorescence antibody test (IFA) and the neutralization test (NT). The results were summarized as follows ;

1). Cross IFA showed a one-way cross reaction between Hantaan (HTN) virus of *Apodemus* origin and Seoul (SL) virus of *Rattus* origin. Cross-NT clearly distinguished the two groups of viruses.

2). In cross-IFA using MABs against the G1 and G2 envelope glycoproteins of HTN virus strain H76-118, it was demonstrated that Hantaviruses were divided into four host-dependent groups ; the HTN, SL, Puumala (PA) and Prospect Hill (PH) virus groups. The antigenicity of strain H76-118 was closer to SL than PA and quite different from PH.

3). In cross-IFA using MABs against G1 and G2 of SL virus strain SR-11, similar reaction patterns were observed between the KI strains and the homologous strains. But strain H76-118 did not show any IFA reaction with the MABs. In cross-NT, strain H76-118 was neutralized as efficiently as the homologous strain by MABs.

4). Anti-nucleoprotein (anti-NP) MABs were divided into 7 groups depending on the cross-reaction pattern to heterologous strains. All the anti-NP MABs reacted to at least 2 heterologous strains, indicating antigenic commonality among Hantaviruses.

5). Antigenic comparison was also made between the 7 KI strains. Cross-IFA using polyclonal antisera showed that the KI strains antigenically cross-reacted with each other. However, IFA and NT with MABs demonstrated that reactivity of KI strains with some of MABs became less with the passage of time. These results suggested that antigenic mutants of the KI strains grew selectively under the presence of the antibodies and antigenic drift of the virus became apparent during long-term persistent infection and transmission among the population of urban rats.