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IMMUNOHISTOLOGICAL STUDIES OF HEMORRHAGIC FEVER
WITH RENAL SYNDROME (HFRS) VIRUS INFECTION AMONG
EXPERIMENTALLY AND NATURALLY INFECTED RATS

Ken KAWAMURA

*Department of Veterinary Public Health
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan*

This study was undertaken to reveal the pathogenicity of HFRS related virus, the mode of transmission of the virus and the sensitivity of rodents to the virus by an immunohistological technique. Accordingly, several kinds of rodents were experimentally infected with HFRS related viruses and urban rats were captured in an endemic focus. Viral antigen was detected in various organs from these animals by the Avidin-Biotin-Peroxidase-Complex (ABC) method.

1. Suckling rats (less than 24 hr) were inoculated by the intraperitoneal (i. p.) route with 10^3 FFU of *Rattus*-borne type viruses (SR-11, TB-314 and KI-262 strains). Only suckling rats inoculated with SR-11 strain showed central nervous symptoms and died within four weeks. In common with these three strains, viral antigens were detected in various organs for a long time. In the suckling rats inoculated similarly with *Apodemus*-borne type virus (H-76-118) and *Microtus*-borne type virus (MP-40), distribution of the antigen in the organs was less and the persistent period of the antigen was short as compared with the cases of *Rattus*-borne type viruses.
2. Suckling rats and adult rats were inoculated by the i. p. or nasal route with SR-11 strains and 50% infectious dose (ID_{50}) was calculated according to the production of antibodies. The ID_{50} values in the contrasting age groups or inoculation routes did not show any significant differences.
3. Antibody-positive cases among the *Rattus norvegicus* individuals captured in an endemic focus of HFRS were mainly detected in mature rats (older than five months). Antigen-positive cases in lung tissues were mostly from rats in which IFA antibody titers were higher than 1 : 512. In addition, the positive cases carrying both antigen and antibody increased with age.