# ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA) FOR DETECTION OF IgM AND IgG ANTIBODIES TO JAPANESE ENCEPHALITIS VIRUS IN SWINE SERA

Yukihiro OHKUBO

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

ELISA was applied to detect IgM and IgG antibodies to Japanese encephalitis virus (JEV) in swine sera. ELISA IgM and IgG antibodies were tested against aceton-ether zonal antigen prepared from JEV infected suckling mouse brains using horseradish-peroxidase labeled rabbit anti-swine IgM or IgG antibodies (conjugates). The ELISA antibody titers were then compared with hemagglutination-inhibition (HI) titers before and after 2-mercaptoethanol (2-ME) treatment.

The results were summarized as follows:

1) JE antibody was examined in the sera of two swine experimentally infected with JEV, JaGAr-01 strain. ELISA IgM antibody was detected first at 5 and 8 days after the virus inoculation, and it remained at high titers for about 3 weeks and then faded away gradually. ELISA IgG antibody appeared at 2 and 4 weeks after the virus inoculation and predominated over the ELISA IgM antibody later. HI titer of sera before 2-ME treatment corresponded well with the higher of the ELISA IgM and IgG titers.

2) ELISA and HI titers were examined in 119 sera colleted at Shizuoka prefecture. No correlation was seen between ELISA IgM and IgG antibody titers in the swine sera. Most of the sera with HI antibody sensitive to 2-ME were judged as IgM type sera in ELISA, and all of the sera with HI antibody resistant to 2-ME were judged as IgG type sera in ELISA.

3) In the Shizuoka sera, the positive rate of IgM type was predominant in the early period of JE epizootic; however, it decreased markedly in the late period, in contrast with the increase in the positive rate of IgG type. It was concluded that ELISA IgM or IgG typing can help to estimate the onset of JEV infection in a swine population.