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levels throughout the experiment.

8) Hemolysin titer began to rise after 50 days (6~72 days) on the average for all recipients, however, the agglutinin titer rose after 7 days for only one of the recipients.

9) The agar-gel-immunodiffusion test of sera obtained at the end of the observations and the histo-pathological examinations of the liver tissues after autopsy revealed non-equine infectious anemia for all recipients.

### HELPER DEPENDENT REPLICATION OF ADENO-ASSOCIATED SATELLITE VIRUS IN DOGS

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Adeno-associated satellite virus (ASV) has been known to replicate *in vitro* in dependence of adenovirus. However, whether it is also dependent on adenovirus *in vivo* remains unknown. To solve this problem, ASV strain M of canine origin, was inoculated into dogs. Dogs have been considered to be one of the natural hosts of ASV.

Sixteen mongrel puppies, 2 to 7-days old, from 5 litters, were fed before inoculation for about 3 weeks in isolated kennels. In each experiment, puppies from the same litter were used for experimental infection and for control. Recovery of the ASV was done by inoculating various organs and tissues of the puppies, and two blind successive passages, in the culture of dog kidney cell (DKC) preinfected for 1 hour with ICHV (strain FD), and by examining the DKC by the indirect fluorescent antibody technique using anti-ASV strain M serum.

Three puppies were inoculated, through the catheter into the stomach, intramuscularly, and intravenously, respectively. No recovery of the ASV and no antibody against ASV by complement fixation tests were found in the dogs inoculated with the ASV alone.

Two puppies were inoculated with the ASV into the stomach through the catheter, then with ICHV (strain Woc-4) subcutaneously. Three puppies were inoculated subcutaneously with the ASV and ICHV simultaneously. The ASV was recovered from the blood, liver, and other organs of a puppy that had died 4 days after the simultaneous inoculation. This puppy manifested the symptoms of infectious canine hepatitis, and from its blood and other organs ICHV was

recovered. ASV was not recovered from, and antibodies were not detected in, the remaining 4 puppies. Of these, one had died after ICHV viremia, one was positive in ICHV detection, one was positive only in ICHV antibody, and another escaped the ICHV infection.

The above results may indicate that the ASV replicates *in vivo* only when ICHV has been co-infected. Helper dependent replication of ASV in dogs was thus clarified.

### PATHOLOGICAL OBSERVATIONS OF THE BURSA OF FABRICIUS IN MAREK'S DISEASE

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In order to clarify the patho-morphological characteristics of the bursa of Fabricius (BF) in Marek's disease, chickens infected with Marek's disease virus (MDV-JM strain) were studied by light and electron microscopy. Ninety birds of 4 groups were examined: They consisted of 42 birds of a normal control group (4 to 157 days old), 20 birds of an inoculated group (on the 3rd to 54th day postinoculation), 16 birds of a contact exposure group (on the 3rd to 156th day postexposure) and 12 birds of a field group (103 to 168 days old) of Marek's disease (MD).

The BF of the normal control group grew with age and the maximum size was attained after 107 days old. Involution changes (physiologic involution) were first observed on 157 days old after the beginning of egg-laying.

The BF involved 3 forms of lesions as follows:

- A; Disappearance of the follicles due to necrosis of the medulla (accompanied with inclusions in the inoculated group)
- B; Atrophy and disappearance of the follicles due to cyst-formation
- C; Neoplastic proliferation of the lympho-reticular cells in the interstitial tissue of the BF.

In the inoculated group, precipitating antibodies to MDV antigens were negative, and all the BF showed severe atrophy (pathologic involution). A-form lesions were found frequently and were severe, and B-form lesions were also observed. Viral antigens by immunofluorescent antibody techniques were localized frequently in the follicles. Intranuclear and cytoplasmic inclusions were found in the reticulum cells and epithelium-like cells in the medulla of the