



Title	EXPERIMENTAL STUDIES ON RESISTANCE TO INFECTION WITH LARVAL ECHINOCOCCUS MULTILOCULARIS IN UNIFORM STRAINS OF MICE
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described experiments.

4) Embryo-adapted AEV derived from the cell cultures was more sensitive to the incubation temperature (38.5°C) than that in the infected brain suspension.

**EXPERIMENTAL STUDIES ON RESISTANCE TO INFECTION  
WITH LARVAL *ECHINOCOCCUS MULTILOCULARIS*  
IN UNIFORM STRAINS OF MICE**

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No report has been published concerning age resistance to infection with larval *Echinococcus multilocularis* LEUCKART, 1863, in experimental animals. The author, therefore, attached importance to the age factor in his investigation into differences of resistance according to strain, age and sex.

Five uniform strains, AKR, A/He, C57BL/6, CF#1 and SJL/J, were used for the experiment. Mice of each strain were classified into 3 groups; 16- to 30-day-old, juvenile, 31- to 83-day-old, prime, and more than 100-day-old, senile. Besides, cases of each group were segregated in both sexes. The mice were inoculated orally with approximately 330 or 400 eggs of the Alaskan strain of *E. multilocularis* obtained from experimentally infected dogs. The mice were killed 30, 60 and 90 days after the inoculation, and parasitic foci were examined macro- and microscopically. Development of the larva (number and size of cysts, appearance of brood capsules and protoscolices, etc.) and host tissue were examined for analysis.

Susceptibilities ranged from 100% (AKR) to 46% (SJL/L). In AKR, the prime and senile groups showed age resistance in a low degree, but no sex difference was confirmable. In A/He, the resistance became higher parallel with the progress of age, and was predominant in males. Neither age nor sex resistance was recognized because of the too slow development of the parasite in C57Bl/6 mice. One female each during pregnancy and just after parturition, however, exhibited low resistance. In CF#1, the prime and senile groups were more resistant than the juvenile, and females showed higher resistance than males. In SJL/J, age resistance progressed by age, but sex difference was indefinite.

In general, all but a few strains of mice are considered to show age resistance to infection with larval *E. multilocularis*. Consequently, not only sex

but age must be taken into consideration for experimental larval echinococcosis multilocularis in mice.

## STUDIES ON HEAT LABILE ANTIGENS OF AVIAN VIBRIO

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One hundred and sixty-four cultures of avian vibrio were isolated from 506 fecal samples (69 flocks) of apparently healthy chickens in Hokkaido, using millipore filters. Biochemical properties of these isolates were closely similar to those of vibrios obtained from the gall-bladders or livers of chickens (GL-strains) and *Vibrio fetus* of bovine origin. Using both oblique transmitted light and crystal violet staining, smooth type colonies (S type) were selected on brucella agar plate. Only 14 (15%) out of 96 isolates from feces and 5 out of 25 GL-strains yielded S type. Antigens were prepared from brucella broth cultures of 6 fecal, 5 GL and 2 *V. fetus* strains of the S type on a shaker at 37°C for 24 hours.

The following results were obtained by cross agglutination and agglutinin-absorption test in the above-mentioned 11 avian vibrio and 2 *V. fetus* strains.

1) The agglutinability and agglutinin-binding capacity of the surface antigens, such as H and possible K antigens, were inactivated by boiling in a reflux condenser for 2 hours, or autoclaving at 120°C for 2 hours.

2) Fresh or formalized whole cell antigens showed inagglutinability to homologous O-antiserum, whereas another antigens, such as those heated, and treated with alcohol or hydrochloric acid, exhibited various degrees of agglutination titer. It seemed likely that these facts suggested the existence of K antigen in avian vibrio.

3) As a result of cross agglutination between whole cell antigens and O-absorbed or anti-whole-cell serum, the distribution of 8 components of heat labile surface antigens was confirmed in avian vibrio. Thus, the strains tested had the following antigenic factors: a, d (2 strains), a, b, d (1), a, b (2), a, c (2), d, g (1), d, h (1), e (1) and f (1).

4) The cross O agglutination test exhibited the existence of common O-antigen in avian vibrio.

5) Antigenic relationship was not found between these avian strains and two serological types of *V. fetus* used.