



Title	Humoral immune responses of hamsters infected with adult <i>Echinococcus multilocularis</i> in the course of reinfection and oral vaccination trial
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Citation	Japanese Journal of Veterinary Research, 48(1), 69-70
Issue Date	2000-05-31
Doc URL	<a href="http://hdl.handle.net/2115/2825">http://hdl.handle.net/2115/2825</a>
Type	bulletin (article)
File Information	KJ00003408159.pdf



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tively. Higher sensitivity and specificity were obtained by heating the fecal samples.

The positive predictive value of Test 1 and negative predictive value of Test 2 were 89% and 73% for the non-heated and 85% and 85% for the heated samples, respectively, thus the results can be accepted. All of the positive samples in Test 1 was also positive in Test 2. Considering the negative samples in Test 1, 56% and 47% of the samples turned to be positive, of which 43% and 61% were true worm positive for non-heated and heated samples, respectively. Therefore, those samples which were negative in Test 1 and positive in Test 2 were classified as suspicious and further tested by the more specific sandwich

ELISA developed in our laboratory. As a result, sensitivity and specificity of this combination judgment became 71% and 94% for the non-heated and 87% and 86% for the heated samples, respectively. If only the samples with  $\geq 100$  worm burden were taken, the sensitivity were 100% in either Test 2 or combination judgment for the heated samples.

Test 1 and Test 2 and their combination judgment revealed different spectra of sensitivity and specificity. More samples should be tested by each test for precise evaluation.

However, these tests could be applicable for field use and rapid diagnosis.

Humoral immune responses of hamsters infected  
with adult *Echinococcus multilocularis*  
in the course of reinfection and oral vaccination trial

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Humoral immune responses and acquired resistance against *Echinococcus multilocularis* were evaluated using alternative definitive host, golden hamsters, after immune

ing any antigens with CT. Time course of coproantigen excretion was examined by sandwich ELISA using monoclonal antibody EmA 9, raised against *E. multilocularis* adult

were found in the small intestine nor coproan-

tigen increased at the course of the infection.

Cloning and histological analysis of the mouse testis specific gene, Sperm tail associated protein (*Stap*)

markable increase of parasite specific intestinal IgA secretion was observed in reinfection groups, but no obvious responses in oral immunization groups. All hamsters showing increased intestinal IgA secretion harbored low numbers of worms. Western blot analysis with serum IgG and IgA in intestinal flush showed strong reaction with 38kDa band of adult somatic antigen. The same band was

also detected in protoscolex somatic antigen. Common band was detected in adult somatic antigen and adult ES antigen at 51kDa. These results suggested that acquired resistance to *E. multilocularis* infection may be associated with systemic recognition of protoscolices and adult somatic antigens, and with local specific intestinal IgA secretion.

### Studies on the parasite fauna of raccoon (*Procyon lotor*) naturalized in Hokkaido, Japan

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From July 1998 through October 1999, 128 naturalized raccoons (*Procyon lotor*), captured in Eniwa, Sapporo, Kitahiroshima, Naganuma, Chitose and Nopporo, in Hokkaido were examined for gastrointestinal helminths and ectoparasites. Nine species of helminths were recognized; Trematoda: *Euparyphium* sp. (prevalence: 27.3%), *Metagonimus takahashii* and *Metagonimus miyatai* (21.9%), *Brachylaima* sp. (6.3%), *Plagiorchis muris* (7.8%), Nematoda: *Molineus legerae* (7.0%), *Ancylostoma kusimaense* (0.8%), *Capillaria putorii* (3.9%), larvae of nematoda possibly *Porrocaecum* sp. (1.6%). And three species of ticks were collected; *Ixodes ovatus*, *I. persulcatus*, and *I. tanuki*.

Seven of the nine helminth species (*M. miyatai*, *Brachylaima* sp., *P. muris*, *M. legerae*, *A. kusimaense*, *C. putorii*, *Porrocaecum* sp.) were new parasite records for raccoon in Japan.

The diversity of gastrointestinal

helminth fauna of the raccoons in Hokkaido, determined by the Simpson index, were poorer than that of red foxes captured at the same area and that of raccoons in North America which is their natural habitat. The gastrointestinal helminth fauna of the raccoon was found similar to that of raccoon dogs rather than that of foxes or weasels. The result suggests that the behavioral pattern of the raccoons resemble that of raccoon dogs in Hokkaido, and that invasion of raccoon may influence the population of raccoon dogs.

In this survey, *Echinococcus multilocularis* and *Baylisascaris procyonis* causing fatal zoonosis were not found. However *E. multilocularis* is now endemic all over Hokkaido Island and the role of raccoon in its life cycle is one of the public health concerns. Accordingly, protoscolices of *E. multilocularis* were experimentally inoculated to a juvenile raccoon. The raccoon was autopsied at fifteen days post-infection, however, no parasites