Passana Sukkasaem. 2000. **Host responses and their effect on reinfection in mice repeatedly infected by *Echinostoma malayanum*.** Master of Science Thesis in Parasitology, Graduate School, Khon Kaen University. [ISBN 974-678-295-9]

Thesis Advisory Committee : Assoc.Prof.Dr.Tuanchai Srisawangwong,
Assoc.Prof.Dr.Paiboon Sithithaworn,
Assoc.Prof.Darunee Jintakanon Charoensiri.

Abstract

This thesis examined the role of host responses against intestinal helminth infection by using a weekly repeated infection system in *Echinostoma malayanum* and mouse model. In the first experiment (preliminary experiment), the worm recoveries from mice receiving weekly infection (10 metacercariae/ mouse/week) for 8 weeks were high, 76% and 75%, in the first 2 weeks and slowly declined until week 8 post first infection. Parasite-specific IgM in serum was detected, by ELISA, in the first week while IgG and IgA appeared in the second week post infection.

For the second experiment, mice were immunized with repeated infection (10 metacercariae/ mouse/ week) for 5 weeks and the worms were cleared by praziquantel treatment prior to challenge with 75 metacercariae/ mouse to assess resistance against reinfection. At intervals post challenge infection the animals were sacrificed and worm recoveries, growth and development and faecal egg counts were measured comparing with the results found in the control group (unimmunized). The results of this experiment demonstrated that worm recoveries of the immunized group were significantly lower than those of the controls beginning from 24 hours post challenge infection. Growth retardation of the recovered worms, the reduction in faecal egg counts and the higher in levels of parasite- specific IgM, IgG and IgA were also observed in the immunized group than in the control. In the third experiment which was designed to detect the antibody levels in mice after removal of the worms (10 metacercariae/mouse/week) demonstrated that serum levels of IgG was relatively stable but IgM and IgA were gradually decreased at 4 weeks post treatment.

Histopathological studies of the intestinal wall of mice revealed that eosinophils were the predominant cells infiltrating around the worm site . Villous atrophy, epithelial desquamation and goblet cell hyperplasia were also observed.

The results of this study clearly show that newly excysted metacercariae are the target of immune responses because most of them disappeared after 24 hours of challenge infection and suggest that goblet cells may be associated with the resistance.