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IMMUNOLOGICAL STUDIES ON LARVAL AND ADULT
ANGIOSTRONGYLUS CANTONENSIS ANTIGENS



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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
(MICROBIOLOGY)

IN THE

FACULTY OF GRADUATE STUDIES

OF

MAHIDOL UNIVERSITY

1983

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SUMMARY

Attempts were made to induce acquired immunity against Angiostrongylus cantonensis infection by immunizing rats with somatic antigens from adult female worms (FACE), with somatic antigens from infective third-stage larvae (L₃S), and with excretory and secretory products of these larvae (L₃ES). With appropriate immunization protocols, the animals were protected against a lethal challenge infection with third-stage larvae as judged by reduced mortality, prolonged survival periods and/or reduced worm burdens. L₃S was the most effective and L₃ES was the least effective antigen. Immunization of rats with L₃S by the oral route reduced the mortality to below 20% of the unimmunized controls. The worm burden of the L₃S-immunized rats was only about 25% of the control value and the survival period was double. However, judging from the unaltered in vitro egg output and ES production and the absence of stunted growth, there was no evidence of adverse effects on the adult worms that developed in L₃S-immunized animals.

Attempts were also made to analyze and characterize protein profiles of somatic extracts from different developmental stages and excretory and secretory products of third-stage larvae of Angiostrongylus cantonensis by polyacrylamide gel electrophoresis in sodium dodecyl sulfate under both reduced and unreduced conditions. Immunological identification of common and stage-specific antigens

was determined by radioimmunoprecipitation using chronically infected rat serum and antisera from rats immunized with somatic extracts of third-stage larvae and adult female worms. The somatic extracts of first- and third-stage larvae and of adult worms were found to be highly complex, each consisting of more than 20 different peptides with molecular weights varying from higher than 130,000 to 8,200 daltons. Most proteins were composed of single polypeptide chains. Polypeptides with molecular weights of 80,000, 74,500, 43,500, 22,000 and 15,500 daltons were present in more than one developmental stages and were antigenically related. Antigenic component with molecular weight of 39,500 dalton was present primarily in L₃S and its possible usefulness in immunodiagnosis of infection that occurs in man was discussed. Another antigenic component with molecular weight of 15,500 dalton was present primarily in L₁S and its possible usefulness in immunoprophylaxis was also discussed.