Schistosoma mansoni :
Purification and Characterization of Schistosome-specific IgG Subclasses

Thesis

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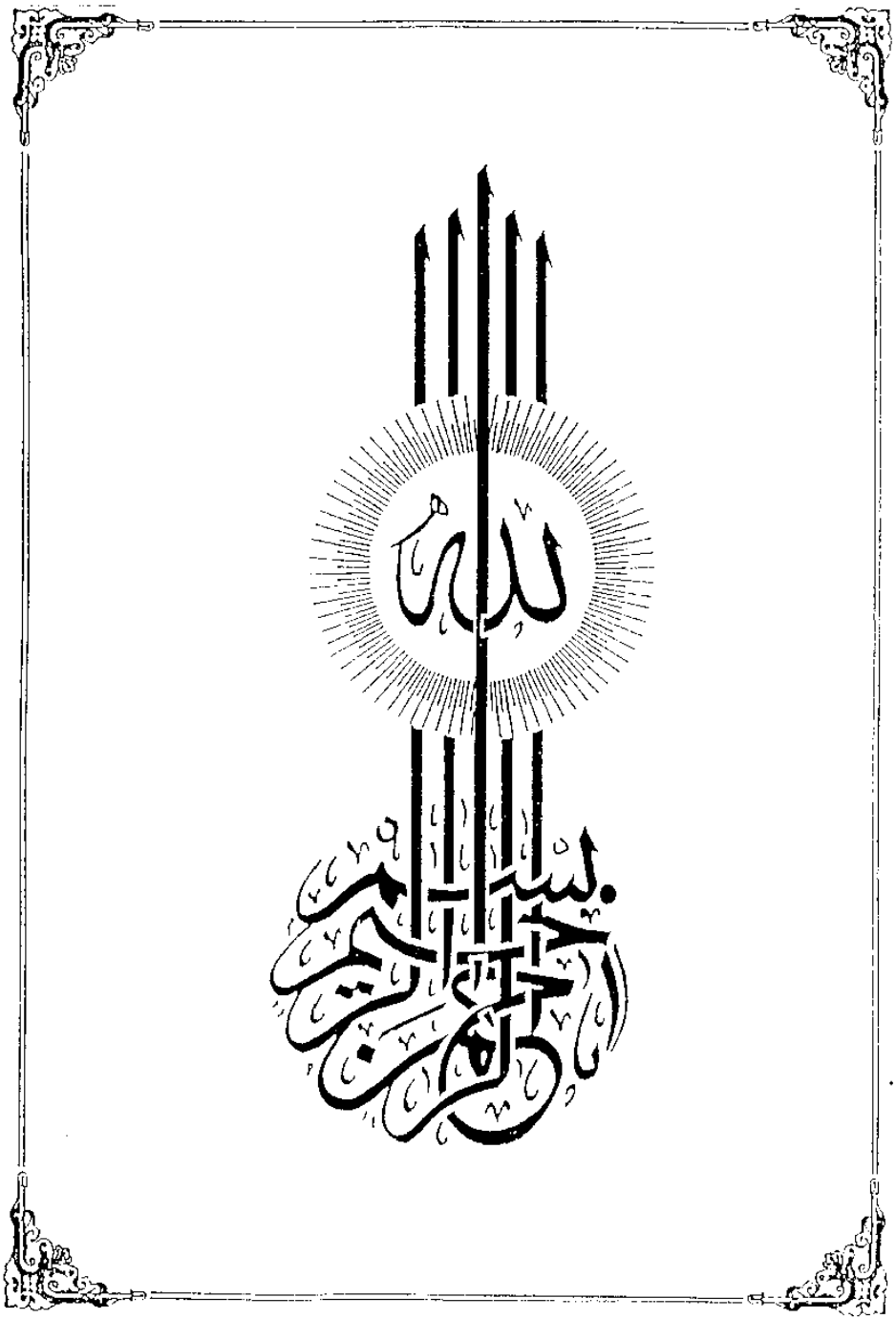
بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا

إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم



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TO MY.....

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ABBREVIATIONS

Ab	Antibody.
ADCC	Antibody dependent complement mediate cytotoxicity.
Ag	Antigen.
BSA	Bovine serum albumin.
CHS	Chronic human serum.
CNBr-4B	Cyanogen bromide activated sepharose-4B.
ELISA	Enzyme-Linked immunosorbent assay.
Ig	Immunoglobulin.
IIF	Indirect immunofluorescence.
Mabs	Monoclonal antibodies.
Mr	Molecular weight.
Np_{-40} AWA	Np_{-40} adult worm antigen extract.
O.D.	Optical density.
PBS	Phosphate buffer saline.
PBS-T	Phosphate buffer saline-Tween20.
PMSF	Para-methyl sulfonide fluoride.
SDS-PAGE	Sodium dodecyl sulfate polyacrylamide gel electrophoresis.
SEA	Soluble egg antigen.
S. m	Schistosoma mansoni.
SWAP	Soluble worm antigen preparation.

AIM OF THE WORK

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This protocol is intended to purify anti-adult worm Np-40 extract antibodies, their specific IgG and it subclasses from sera of S. mansoni chronic human infections. Specific IgG and its subclasses will be tested for purity, specificity for adult worm membrane antigen, recognition of epitopes on the surfaces of schistosomula, eggs and adult worms and ability to mediate in vitro complement-dependent killing of schistosomula.

INTRODUCTION

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I. Schistosomiasis

Schistosomiasis is a world-wide health problem affecting more than 200 million people in many countries ***(Stockard, 1978)*** and is considered the second most prevalent disease in the world next to malaria.

This disease was first recognized by the Egyptians 4000 years ago ***(Ruffer, 1910)*** and currently in Egypt schistosomiasis diminishing millions of people's productivity and exerting significant socio-economic impact. Moreover, this disease is increasing in both prevalence and distirbution as man continues to produce an ecology suitable for disease transmission ***(Jordan, 1972).***

Theordore Bilharz (1851 - 1853) in Cairo discovered the **Schistosome haematobium** worm secreting eggs with terminal spine in the urine of patients and provided the first description of many of the pathological sequelae of acute infection, whereas, a case from the Caribbean with schistosomiasis had many eggs with Lateral spine in the feces but not found in the urine ***(Katz, et al., 1989).***

Sambson (1907) differentiated the two Schistosoma on the basis of morphology and origin of the eggs in the stool and urine.

The new organism, **Schistosoma mansoni**, was named by Sambson in tribute to Manson ***(Sambson, 1907).***

In Egypt, nearly half of the population are infected with **Schistosoma mansoni** and /or **Schistosoma haematobium** ***(Abdel-Wahab, et al., 1980).*** Twelve to fifteen millions are infected with **S. mansoni,** and its prevalence is increasing in certain areas of Egypt's Nile delta ***(El-Alamy and Cline, 1979; Abdel-Wahab, et al., 1979),*** and are also spreading to areas where it was not previously recorded ***(Ayad, 1974).***

Shistosomiasis mansoni is believed to be a causative factor in anemia, nutritional deficiencies and Liver diseases in Egypt. ***(Abdel-Wahab, et al., 1980).***

In man, Schistosomiasis is caused by the three main trematode species belonging to the genus **Schistosoma: S. haematobium, S. Mansoni** and **S. japonicum** and their snail intermediate hosts belong to the genus **Bulinus, Biomphalaria** and **Onchomelania,** respectively. **S. mansoni** is found in Africa, Asia, South America and the Caribbean. **S. haematobium** is found in Africa, and the Near and Middle East. **S. japonicum** is located in the Far East ***(Manson-Bahr, 1987).***

Human or animal excreta containing schistosome eggs contaminate water harbouring snail intermediate hosts. The