

AD-A040 244

KANSAS UNIV MEDICAL CENTER KANSAS CITY
IMMUNE RESPONSES IN PARASITIC DISEASES.(U)
JUL 77 D J STECHSCHULTE, H B LINDSLEY

F/G 6/15

UNCLASSIFIED

DAMD17-74-C-4136
NL

| OF |
ADA
040244



END
DATE
FILMED
6-77

AD A 040244

12
B.S.

DISSEMINATION STATEMENT A
Approved for public release
Distribution Unlimited

DDC
RECEIVED
JUN 7 1977
A

DDC FILE COPY

12

AD _____

Report Number 2

"Immune Responses in Parasitic Diseases"

Annual Summary Report

Daniel J. Stechschulte, M.D.
Herbert B. Lindsley, M.D.

1 July 1977

Supported by

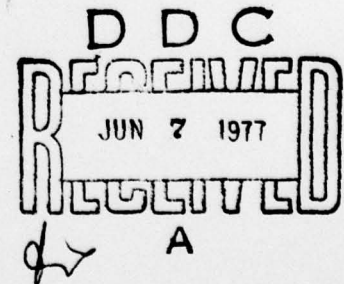
U. S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
Washington, D. C. 20314

Contract No. DAMD 17-74-C-4136

The University of Kansas Medical Center
College of Health Sciences and Hospital
Kansas City, Kansas 66103

DDC DISTRIBUTION STATEMENT

Approved for public release;
distribution unlimited



Report Number 2

"Immune Responses in Parasitic Diseases"

Annual Summary Report

Daniel J. Stechschulte, M.D.
Herbert B. Lindsley, M.D.

1 July 1977

Supported by

U. S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
Washington, D. C. 20314

Contract No. DAMD 17-74-C-4136

The University of Kansas Medical Center
College of Health Sciences and Hospital
Kansas City, Kansas 66103

DDC DISTRIBUTION STATEMENT

Approved for public release;
distribution unlimited

ADPSTICR for	
NTIS	With Section <input checked="" type="checkbox"/>
DDC	With Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION	
DISTRIBUTION STATEMENT CODES	
Dist.	AVAIL. AND SPECIAL
A	

1
7-1/2%

I. The generation of high-titered monospecific antisera to the rat immunoglobulins has required the continual purification of the rat immunoglobulins of the IgG₁ and IgM class. The initial antisera raised to these immunoglobulins required multiple absorptions in order to produce monospecific reagents. The purification technique for the IgG₁ immunoglobulin has been altered to include extraction from 7½% polyacrylamide gels, and this has resulted in the generation of a 7S molecule which is homogeneous on polyacrylamide gels which is free of contaminating proteins, as assessed by immunochemical analysis utilizing antisera to rat serum. This has permitted the development of a radial immunodiffusion assay for the quantitation of total IgG₁ protein in the sera of animals infected with T. rhodesiense 1886 for comparison of the change in total immunoglobulin level during the course of the infection. The purification of IgM has included the utilization of preparative starch block electrophoresis followed by G200 gel filtration. This preparation is free of the major contaminant, (α₂ macroglobulin) and initial studies with serum from goats immunized with this preparation are encouraging. In addition, goats have been immunized with the immunoprecipitate obtained with goat anti-IgM reacting in agar with rat IgM.

A. The humoral immune response in rats infected with T. rhodesiense 1886 has been assessed and the following conclusions can be made: (1) hypocomplementemia develops with increasing parasitemia and both the classical pathway are involved as assessed by hemolysis assay utilizing sensitized sheep red blood cells for assessment of the classical pathway and hemolysis of rabbit red blood cells for assessment of the alternative pathway.

B. The immune response in rats infected with T. rhodesiense is characterized by the generation of antibody to both DNA and RNA consistent with observations in other species. The relationship of the autoantibody to the disease process is not known.

C. The initial results utilizing radioimmuno-electrophoresis suggested an enhancement of IgG₁ and IgM antibody to an unrelated antigen such as DNP during the course of T. rhodesiense infections in the rat. Further assessment of this response utilizing radiolabeled antigen-binding for measurement of the antibody response does not confirm the results obtained with radioimmuno-electrophoresis. Thus, the marked hypergammaglobulinemia, particularly involving the gamma 1 and IgM classes, during an infection with this parasite does not extend to cells with the prior commitment to producing antibodies of a selected specificity. This would argue that the hypergammaglobulinemia represents an antibody response to parasite antigens or alternatively that only uncommitted plasma cells are capable of responding to this uncharacterized stimulus.

II. Studies have continued in collaboration with Dr. Nagle into the development of T. rhodesiense induced glomerulonephritis in the rat. Electron microscopic and immunofluorescent studies clearly indicated a glomerular lesion in this model, and studies are in progress which are designed to characterize the antibody depositing in the kidney and if possible identify an associated antigen.

III. Because of the unavailability of sufficient quantities of monospecific antisera to the various rat immunoglobulins no studies have been initiated to study and isolate protective antibody in this infection. Adoptive transfer studies with lymphocytes are also pending.

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 2 ✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Immune Responses in Parasitic Diseases	6	5. TYPE OF REPORT & PERIOD COVERED Annual Summary Report, NO. 2, 1 July 1976 - 30 June 1977, 7
7. AUTHOR(s) Daniel J. Stechschulte, M.D. Herbert B. Lindsley, M.D.	10	6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS The University of Kansas Medical Center ✓ College of Health Sciences and Hospital Kansas City, Kansas 66103	15	8. CONTRACT OR GRANT NUMBER(s) DAMD 17-74-C-4136
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Army Medical Research and Development Command, Washington, D.C. 20314	16	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 6.27.70.A 3M762770A802 00/045 17
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	11	12. REPORT DATE 1 July 1977
	12	13. NUMBER OF PAGES 5 p.
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) T. rhodesiense anti-nuclear antibody Rats glomerulonephritis IgG ₁ production hypocomplementemia		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		