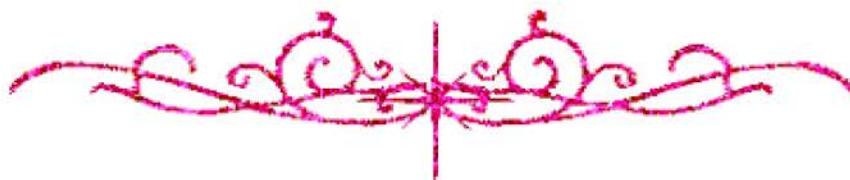




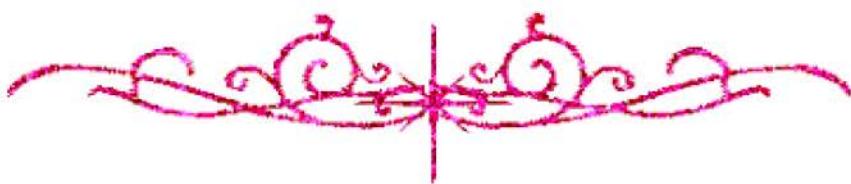
شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم





جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

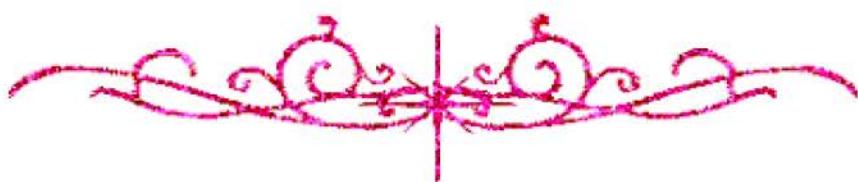
قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

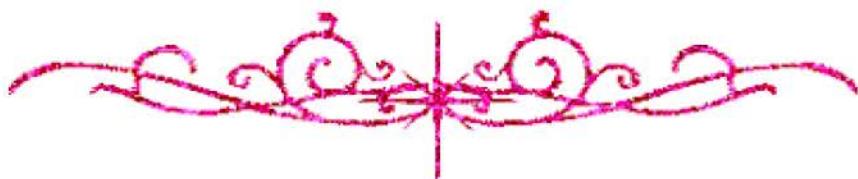
تحفظ هذه الأقراص المدمجة بعيداً عن الغبار





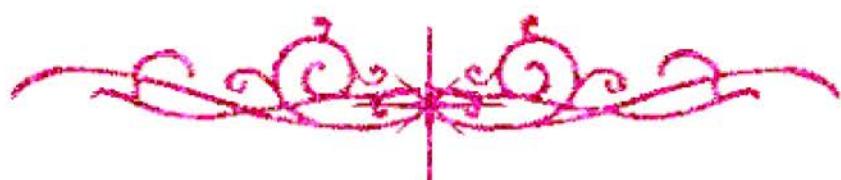
بعض الوثائق

الأصلية تالفة





بالرسالة صفحات
لم ترد بالاصل



B17A20

Experimental study on mice sensitized by *Ascaris suum* extract as a model for *Ascaris lumbricoides*

Thesis

SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENT FOR M.Sc. DEGREE IN PARASITOLOGY

By

Salwa Fouad Ahmed Oshiba

M.B.B.Ch

Demonstrator of Parasitology

Faculty of Medicine, Menoufiya University

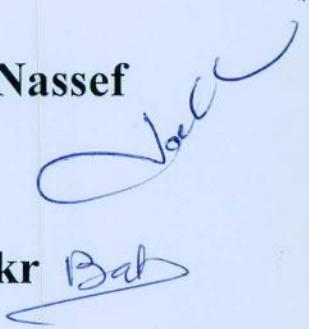
Supervised by

Prof. Dr. Nashaat El-Sayed Abd El-Monem Nassef

Professor and Head of Parasitology Department

Faculty of Medicine, Menoufiya University

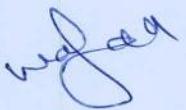
Prof. Dr. Maimona El-Sayed Ahmed Bakr

Bakr

Professor of Parasitology

Faculty of Medicine, Menoufiya University

Dr. Wafaa Mohamed El-Kersh

Wafaa

Assistant Professor of Parasitology

Faculty of Medicine, Menoufiya University

**Faculty of Medicine
Menoufiya University**

(2006)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(قَالَ إِسْرَائِيلُ أَنْتَ مَنْ عَلِمْتَ
أَنْتَ أَعْلَمُ الْعَالَمِينَ)

صدق الله العظيم

سورة البقرة : (٣٢)

Acknowledgement

First of all, thanks to **Allah** who have lightened my path and granted me the ability to accomplish this work.

I would like to express my deepest gratitude and great appreciation to our **Prof. Dr. Nashaat El-Sayed Abd El-Monem Nassef**, Professor and Head of Parasitology Department, Faculty of Medicine, Menoufiya University for her patience, valuable guidance, cooperative supervision, continuous encouragement, sincere help and efforts in building up this thesis and to complete up this work.

I also wish to express my sincere thanks and gratitude to **Prof. Dr. Maimona El-Sayed Ahmed Bakr**, Professor of Parasitology, Faculty of Medicine, Menoufiya University for her guidance, kind encouragement, continuous advice and sincere follow up.

I would like to express my deepest gratitude and great appreciation to **Prof. Dr. Wafaa Mohamed El-Kersh**, Assistant Professor of Parasitology, Faculty of Medicine, Menoufiya University for her close supervision, generous advice, continuous encouragement and follow up.

I would like to express my gratitude to **Prof. Dr. Mona Mohamed Kamel Zohiry**, Assistant Professor of Immunology, Institute of Bilharz for her thankful efforts, support and valuable help in the present work.

Words can never express my deep thanks to **Dr. Hayam Abdel-Samei Aiad**, Lecturer of Pathology, Faculty of Medicine, Menoufiya University for her sincere help and follow up in histopathological and cytological work.

I thank my colleagues in Parasitology Department and our staff members.

Finally, I thank my husband and all my family for their efforts and unlimited support.

List of Abbreviations

A. lumbricoides	: <i>Ascaris lumbricoides</i>
A. Suum	: <i>Ascaris suum</i>
ALT	: Alanine transaminase
ASABF	: <i>Ascaris suum</i> antibacterial factor
Asc	: <i>Ascaris suum</i> extract
BAL	: Bronchoalveolar lavage
BC	: Before Christmas
c	: Constant
C₃	: Complement 3
c.c.	: Cubic/centimeter
CD4	: Cluster differentiation 4
cm	: Centimeter
CT	: Computerized Tomography
D.W.	: Distilled water
DEC	: Diethylcarbamazine citrate
ELISA	: Enzyme Linked Immunosorbent Assay
ES	: Excretory secretory
Fab	: Antibody - binding fragment
Fc	: Crystallizable fragment
FcεRI	: The high affinity receptor for IgE
FcεR2	: The low affinity receptor for IgE, also called CD23
g	: Gram
g	: gravity (relative centrifugation) force
GM-CSF	: Granulocyte-macrophage colony stimulating factor
h	: Hour
H	: Heavy
I.P.	: Intraperitoneal
I.V.	: Intravenous
IFN.γ	: Interferon gamma
Ig	: Immunoglobulin
IL	: Interleukin

List of Abbreviations

A. lumbricoides	: <i>Ascaris lumbricoides</i>
A. Suum	: <i>Ascaris suum</i>
ALT	: Alanine transaminase
ASABF	: <i>Ascaris suum</i> antibacterial factor
Asc	: <i>Ascaris suum</i> extract
BAL	: Bronchoalveolar lavage
BC	: Before Christmas
c	: Constant
C₃	: Complement 3
c.c.	: Cubic/centimeter
CD4	: Cluster differentiation 4
cm	: Centimeter
CT	: Computerized Tomography
D.W.	: Distilled water
DEC	: Diethylcarbamazine citrate
ELISA	: Enzyme Linked Immunosorbent Assay
ES	: Excretory secretory
Fab	: Antibody - binding fragment
Fc	: Crystallizable fragment
FceRI	: The high affinity receptor for IgE
FceR2	: The low affinity receptor for IgE, also called CD23
g	: Gram
g	: gravity (relative centrifugation) force
GM-CSF	: Granulocyte-macrophage colony stimulating factor
h	: Hour
H	: Heavy
I.P.	: Intraperitoneal
I.V.	: Intravenous
IFN.γ	: Interferon gamma
Ig	: Immunoglobulin
IL	: Interleukin

kDa	: Kilodalton
Kg	: Kilogram
L	: Light
mA	: Milliamper
mg	: Milligram
ml	: Millilitre
mm	: Millimeter
mM	: Millimolar
MR cholangiography	: Magnetic resonant cholangiography
ng	: Nanogram
NO	: Nitric oxide
OD	: Optical Density
P.I.	: postinoculation
PBS	: Phosphate Buffered Saline
PCR	: Polymerase Chain Reaction
SD	: Standard deviation
SDS	: Sodium dodecyl sulphate
SDS-PAGE	: Sodium dodecyl sulphate-polyacrylamide gel electrophoresis
SOD	: Superoxide dismutase
Th2	: Thymic helper cell 2
V	: Volt
v	: variable
v/v	: Volume/Volume
w/v	: Weight/Volume
μ	: Micron
μl	: Microlitre
μm	: Micrometer
\bar{X}	: Mean

List of Tables

	Table	Page
Table I	Calculation of the animal dose of drugs according to the human dose (Paget and Barnes, 1964).	65
Table 1	The range number of eosinophils $\times 10^4$ cell/ml and cell differential % in BAL fluid and specific serum IgE OD range in group I (measured at 492 nm).	77
Table 2	The mean \pm standard deviation ($\bar{X} \pm SD$) for total cell count, cell differential % and eosinophilic count in BAL fluid and the level of OD values of specific serum IgE in IA and IB subgroups.	78
Table 3	Frequency of eosinophils distribution in the lung tissue and specific serum IgE OD ranges in subgroups IA and IB.	81
Table 4	Eosinophilic number $\times 10^4$ cell/ml and cell differential % in BAL fluid and specific serum IgE OD ranges in group II.	83
Table 5	The mean \pm standard deviation ($\bar{X} \pm SD$) for total cell count $\times 10^4$ cell/ml, cell differential % and eosinophilic count in BAL fluid and OD of specific serum IgE in mice of subgroup IIA and IIB.	84
Table 6	Comparison between subgroups IIA & IIB as regards distribution of different grades of eosinophils in the lung and specific serum IgE OD levels.	87
Table 7	Number of eosinophils $\times 10^4$ cell/ml and cell differential % in BAL fluid and specific serum IgE OD range in group III.	89
Table 8	The mean \pm standard deviation ($\bar{X} \pm SD$) for total cell count, cell differential % and eosinophilic count in	90

	BAL fluid and specific serum IgE OD values in mice in subgroup IIIA and IIIB.	
Table 9	Comparison between subgroups IIIA and IIIB as regards density of eosinophil infiltrate in the lung tissue and specific serum IgE OD levels.	93
Table 10	Comparison between mean±SD for total cell count, cell differential % and eosinophilic count in BAL fluid and specific serum IgE OD levels in mice of subgroup IA, IIA and IIIA.	96
Table 11	The distribution of different grades of eosinophil density in liver and peritoneum and specific serum IgE OD ranges in subgroup IVA.	102
Table 12	Comparison between mean±SD of specific serum IgE OD levels in different grades of lung eosinophils in the studied subgroups treated by intranasal route.	105
Table 13	The mean±SD of specific serum IgE OD levels of subgroups IVA and IVB (control group).	106
Table 14	Comparison between each studied subgroup and its control as regards cut off values of specific serum IgE OD levels (cut off value = mean + 2SD = 0.234).	107
Table 15	Comparison between subgroups administered <i>Ascaris suum</i> extract by intranasal route as regards cut off values of specific serum IgE OD levels.	110
Table 16	correlation between eosinophilic number in bronchoalveolar lavage (BAL) fluid and specific serum IgE OD levels.	111

List of Figures

	Figure	Page
Fig. 1	BAL fluid showing hypocellular smear formed mainly of macrophages with no eosinophils in mice given saline nasally. Giemsa stain ($\times 400$).	114
Fig. 2	BAL fluid showing hypercellular smear with many eosinophils in mice given <i>Ascaris suum</i> extract nasally. Giemsa stain ($\times 400$).	114
Fig. 3	BAL fluid showing hypercellular smear with many eosinophils in mice given <i>Ascaris suum</i> extract nasally. Giemsa stain ($\times 1000$) (oil immersion).	115
Fig. 4	Lung tissue showing mild peribronchiolar inflammatory infiltrate in mice given saline nasally. (H & E) stain ($\times 100$).	116
Fig. 5	Lung tissue showing dense infiltrate with many eosinophils and severe emphysema in mice given <i>Ascaris suum</i> extract nasally. (H & E) stain ($\times 100$).	116
Fig. 6	Lung tissue showing dense infiltrate with many eosinophils (peribronchiolar) and emphysema in mice given <i>Ascaris suum</i> extract nasally. (H & E) stain ($\times 400$).	117
Fig. 7	Lung tissue showing dense infiltrate with many eosinophils and odema in mice given <i>Ascaris suum</i> extract nasally. (H & E) stain ($\times 400$).	117
Fig. 8	Lung tissue showing dense infiltrate with many eosinophils in mice given <i>Ascaris suum</i> extract nasally. (H & E) stain ($\times 400$).	118
Fig. 9	Lung tissue showing moderate infiltrate of inflammatory cells (mainly macrophages with few eosinophils) & thickening of alveolar septae in mice given <i>Ascaris suum</i> extract nasally and cyclosporine orally. (H & E) stain ($\times 400$).	118
Fig. 10	BAL fluid showing hypocellular smear formed mainly of macrophages with few eosinophils and lymphocytes in mice given <i>Ascaris suum</i> extract nasally and cyclosporine orally. Giemsa stain ($\times 200$).	119

Fig. 11	Lung tissue showing infiltrate mainly of macrophages with few eosinophils and lymphocytes in mice given <i>Ascaris suum</i> extract nasally and cyclosporine orally. (H & E) stain ($\times 400$).	119
Fig. 12	BAL fluid showing hypocellular smear with few eosinophils in mice given <i>Ascaris suum</i> extract nasally and antiver orally. Giemsa stain ($\times 400$).	120
Fig. 13	Lung tissue showing moderate peribronchial inflammatory infiltrate with emphysema in mice given <i>Ascaris suum</i> extract nasally and antiver orally. (H & E) stain ($\times 100$).	120
Fig. 14	Liver tissue showing no remarkable pathological changes in mice given saline I.P. (control group). (H & E) stain. ($\times 200$).	121
Fig. 15	Liver tissue showing moderate periportal inflammatory infiltrate in mice given <i>Ascaris suum</i> extract I.P. (H & E) stain ($\times 200$).	121
Fig. 16	Liver tissue showing moderate periportal inflammatory infiltrate of eosinophils, lymphocytes and macrophages & hydropic degeneration of liver cells in mice given <i>Ascaris suum</i> extract I.P. (H & E) stain ($\times 400$).	122
Fig. 17	Dense omental infiltrate in mice given <i>Ascaris suum</i> extract I.P. (H & E) stain ($\times 400$).	122
Fig. 18	Lung tissue showing dense peribronchial inflammatory infiltrate with severe emphysema & intrabronchial haemorrhage in mice given <i>Ascaris suum</i> extract nasally (of high protein concentration). (H & E) stain ($\times 100$).	123
Fig. 19	Lung tissue showing dense peribronchial inflammatory infiltrate & intrabronchial abscess in mice given <i>Ascaris suum</i> extract nasally (of high protein concentration). (H & E) stain ($\times 200$).	123
Fig. 20	Blood film showing no eosinophils. Giemsa stain. ($\times 400$).	124