



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات
لم ترد بالأصل

**MOLECULAR LOCALIZATION OF SOME
GENES ON CHROMOSOMES OF
SCHISTOSOMES**

**A Thesis
Submitted
By
FAKHER HOUSSEIN JERBI. M.Sc.**

**To
The Faculty of Science
Ain Shams University
Cairo - Egypt**

**For
The award of the Ph.D. Degree
In Zoology
(Molecular Genetics)**

1998

B. 1074

M.A. El-Sherpieny
Shady



MOLECULAR LOCALIZATION OF SOME GENES ON CHROMOSOMES OF SCHISTOSOMES

Supervisors

Prof. Dr.

Mahmoud Ahmed El-Banhawy

Professor of Experimental Zoology (Cell Biology and
Histochemistry), Faculty of Science,
Ain Shams University,

Prof. Dr.

Mohamed Ali Saber

Professor and Head of Biochemistry Department,
Theodor Bilharz Research Institute

Dr.

Shadia Hassan Mohamed

Associate Professor of Parasitology,
Zoology Department, Faculty of Science,
Ain Shams University

ACKNOWLEDGMENT

I would like to express my deepest indebtedness and gratitude to Professor Dr. **Mahmoud Ahmed El-Banhawy**, Professor of Experimental Zoology (Cell Biology and Histochemistry), Faculty of Science, Ain Shams University, for his guidance and encouragement. and scientific support. Sincere thanks and deep appreciation are due to his sponsorship of the whole work and for careful reading of the manuscript.

This study would have been impossible without the true help and guidance of Professor Dr. **Mohamed Ali Saber**, Professor and Head of Biochemistry Department, Theodore Bilharz Research Institute. He has kindly provided me with the facilities of his lab. Working under his guidance and supervision has taught me a lot, I feel that I am really lucky to have been close to him.

I would also like to thank Dr. **Shadia Hassan Mohamed**, Associate Professor of Parasitology, of Zoology Department, Faculty of Science, Ain Shams University, for her interest in the work, valuable advice, encouragement and her revising the manuscript.

Abstract

In this study, two clones coding for two genes (aldolase and fimbrin) were isolated from cDNA library of Egyptian *S. mansoni*, with molecular size of 1.4 kb and 2.4 kb, respectively. These clones have been used to localize their genes on the chromosomes of *S. mansoni* and *S. haematobium* sporocysts, by *in-situ* hybridization and PRimed *in-situ* hybridization. Using enzymatic detection system : biotin streptavidin alkaline phosphatase and the signals visualized by using color dye, the aldolase gene has been localized on the distal region of the long arm (q) of autosomal chromosome number 1. The fimbrin gene has been localized on distal region of long arm (q) of autosomal chromosome number 4 in both *S. mansoni* and *S. haematobium*. Schistosome metaphase chromosomes, prepared for light microscopy cytogenetic analysis and processed for scanning electron microscopy. At low power, the chromosomes showed a three-dimensional cylindrical profile and a smooth surface. The surface morphology shows globular structure and chromatin fibres at higher magnifications.

List of Abbreviations

AP	Alkaline phosphatase .
<i>B. alexandrina</i>	<i>Biomphalaria alexandrina</i> .
BCIP	5-Bromo-4-chloro-3-indolyl-phosphate .
bp	Base pair .
BSA	Bovine serum albumin .
<i>B. Truncatus</i>	<i>Bulinus truncatus</i> .
C-bands	Constitutive heterochromatic bands.
cDNA	Complementary deoxyribonucleic acid.
DNA	Deoxyribonucleic acid.
DNase	Deoxyribonuclease .
dNTP	Deoxy nucleotide tri-phosphate .
<i>E. coli</i>	<i>Escherichia coli</i> .
EDTA	Ethylenediamine tetrachloro acetic acid.
eg3	Euchromatic gap region 3.
ESTs	Expressed Sequenced Tags.
FISH	Fluorescence <i>in-situ</i> hybridization .
G-bands	Giemsa bands .
GTG	Giemsa-bands by trypsin using Giemsa .
kb	Kilo base.
kDa	Kilo Dalton.
KV	Kilo voltage .
LM	Light microscope .
λ ZAP II	Derivative of bacteriophage lambda.
mRNA	Messenger ribonucleic acid.
NBT	Nitro blue tetrazolium.
ORF	Open reading frame.
OD	Optical density.

pBluescript	Plasmid cloning vector.
PBS	Phosphate buffer saline.
PCR	Polymerase chain reaction.
pfu	Plaque forming unit.
PRINS	PRimed <i>in-situ</i> hybridization.
rDNA	Repeated deoxyribonucleic acid.
RNA	Ribonucleic acid.
RNase	Ribonuclease.
SA-AP	Streptavidin alkaline phosphatase conjugate.
SCOX1	<i>S. mansoni</i> cytochrome oxidase.
SDS	Sodium dodecyl sulphate.
SEM	Scanning electron microscope.
<i>S. haematobium</i>	<i>Schistosoma haematobium</i> .
Sm 22.9	<i>S. mansoni</i> protein, 22.9 kDa in size.
Sm 22.7	<i>S. mansoni</i> protein, 22.7 kDa in size.
SMDH	<i>S. mansoni</i> malate dehydrogenase.
SSC	Standard saline citrate.
TCH	Thiocarbo hydrazide.
TE	Tris EDTA buffer.
UV	Ultra violet.
XL-Blue	A strain of <i>Escherichia coli</i> .
YAC	Yeast artificial chromosome.