DETECTION OF G1 GENOTYPE OF HUMAN CYSTIC ECHINOCOCCOSIS IN EGYPT

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Presented By

Heba Abd-El Kader Ramadan Aminou
M.B., B.Ch., M.Sc., Assistant Lecturer of Medical Parasitology,
Faculty of Medicine, Ain Shams University

Supervised By

Professor Doctor/Mohammad Hassan Abd Elbaki
Professor of Medical Parasitology,
Faculty of Medicine, Ain Shams University

Professor Doctor/Adel Mohamed Gamal El Missiry
Professor of Medical Parasitology and
Executive Director of Medical Research Centre,
Faculty of Medicine, Ain Shams University

Professor Doctor/Heba El Sayed Mohamed Abd El Aaty
Professor of Medical Parasitology,
Faculty of Medicine, Ain Shams University

Doctor/Anhar Abd El Aziz Mohamad
Assistant Professor of Medical Parasitology,
Faculty of Medicine, Ain Shams University

Faculty of Medicine
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الكشف عن المورثة G1 لحالات الأكياس المائية فى الانسان فى مصر

رسالة مقدمة لكلية الطب جامعة عين شمس توطئة للحصول على درجة الدكتوراه
فى العلوم الطبية الأساسية (علم الطفيليات)

مقدمة من

الطبيبة/ هبة عبد القادر رمضان أمينو

مدرس مساعد بقسم علم الطفيليات
كلية الطب جامعة عين شمس

تحت اشراف

الأستاذ الدكتور/ محمد حسن على عبد الباقى

استاذ بقسم علم الطفيليات
كلية الطب جامعة عين شمس

الأستاذ الدكتور/ عادل محمد جمال المسيرى

استاذ بقسم علم الطفيليات
المدير التنفيذى لمركز البحوث الطبية
كلية الطب جامعة عين شمس

الأستاذ الدكتور/ هبة السيد محمد عبد العاطى

استاذ بقسم علم الطفيليات
كلية الطب جامعة عين شمس

الدكتور / انهار عبد العزيز محمد

استاذ مساعد بقسم علم الطفيليات
كلية الطب جامعة عين شمس

كلية الطب
جامعة عين شمس
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Abbreviations

A	Adenine
Ab	Antibody
AE	Alveolar echinococcosis
Ag	Antigen
AHD	Alveolar hydatid disease
bp	Base pair
Buffer AE	Elusion buffer
Buffer AL	Lysis buffer
Buffer Aw1	Washing buffer 1

Buffer Aw2	Washing buffer 2
C	Cytosine
CAg	Circulating antigen
CE	Cystic echinococcosis
CFT	Complement fixation test
CHD	Cystic hydatid disease
CICs	Circulating immune complexes
CIEP	Counter-immunoelectrophoresis
CT	Computerized tomography
DD5	Arc-5 Double Diffusion
ddH2O	Doubled distilled water
DH	Definitive host
DNA	Deoxyribonucleic acid
DNase	Deoxyribonuclease
E.granulosus	*Echinococcus granulosus*
E.multilocularis	*Echinococcus multilocularis*
ELISA	Enzyme linked immunosorbent assay
FISH	Fluorescence in-situ hybridization
FNAB	Fine needle aspiration biopsy
G	Guanine
HCF	Hydatid cyst fluid
IDT	Intradermal test
IFAT	Indirect immunofluorescent antibody test
Ig	Immunoglobulin
IH	Intermediate host
IHAT	Indirect haemagglutination test
ISH	In-situ hybridization

KDa	Kilo Dalton
LAT	Latex agglutination test
LCR	Ligase chain reaction
MRI	Magnetic resonance imaging
PAIR	Percutaneous aspiration injection reaspiration
PCR	Polymerase chain reaction
QCRT-PCR	Quantitative competitive reverse transcriptase PCR
RAPD-PCR	Random amplified polymorphic DNA-PCR
RAST	Radioallergosorbent test
REs	Restriction endonucleases
RFLP	Restriction fragment length polymorphism
RNA	Ribonucleic acid
RT-PCR	Reverse transcriptase PCR
SDS-PAGE	Sodium dodecyl sulfate polyacrylamide gel electrophoresis
T	Thymine
U/S	Ultrasound
WB	Western blotting

Introduction

Human echinococcosis is a disease that results from parasitism by the larval stage of four *Echinococcus* species of which *Echinococcus granulosus* (*E.granulosus*) causing cystic hydatid disease and *E.multilocularis* causing alveolar hydatid disease are the most important. Minor species are *E.vogeli* causing polycystic hydatid disease and *E.oligarthrus* **(Goldsmith et al., 2005).**

Cystic echnicoccosis (CE), termed "hydatid disease" or "hydatidosis" is caused by infection with the larval stage (metacestode) of the dog tapeworm *E.granulosus*. It is a major zoonosis of worldwide distribution and is especially prevalent in sheep raising countries **(McManus et al., 2003).** The disease is characterized by long – term growth of metacestode cysts in humans and domestic animals. It is not only important as a public health problem in areas where the disease is endemic, but also responsible for significant economic loss in livestock **(Li et al., 2003).**

CE is considered as an emerging disease in various regions, e.g. the Middle East, Central Asia, and Northern and Eastern Africa **(Eckert et al., 2001).**

Now, it is well recognized that *E.granulosus* exhibits extensive intraspecific (strain) variation that may impact the diagnosis, epidemiology, pathology and control of hydatid disease. It has also important implications for the design and