



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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التوثيق الإلكتروني والميكروفيلم

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Rapid methods for detection of Equine Herpes Virus 1 in Arabian Horses in Egypt

Thesis Presented

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Abstract

Equid Herpesvirus 1 (EHV-1) is the most important virus causing pathological disorders in horses. It causes recurrent outbreaks of abortion and neurological disorders with high mortality in Arabian horses in Egypt. As EHV1 is a very contagious disease, rapid and accurate diagnosis is important to broaden our understanding of EHV-1 in the field and implement proper preventive and control measures. Samples were collected from sixty six clinical cases over a period from 2016 to 2019. All samples originated from Arabian horse studs with respiratory, abortigenic and neurological outbreaks in Cairo and Giza governorates. EHV1 was diagnosed preliminarily in these clinical cases by immunohistochemistry using monoclonal antibody against EHV1 glycoprotein B and then by molecular detection using real time PCR which diagnosed EHV-1 infection in twenty five samples within short time in less than three hours including DNA preparation. Molecular characterization of glycoprotein B (gB, ORF33) gene was applied for confirmation. Molecular characterization revealed that genetically identical EHV-1 strains were still circulating in Egypt. These strains were closely related to the European EHV-1 strains. Furthermore, EHV-1 sequences from this study showed little or no differences for the amino acid's sequences compared to previously published sequences. This study would be valuable for monitoring of EHV-1 infection in Egypt and determining the gB gene sequence of newly identified EHV-1 field strains which is the most conserved region in the viral DNA and frequently used as a target for diagnostic PCR protocols for the future outbreaks.

Keywords: qPCR, EHV-1, glycoprotein B gene (gB, ORF 33), Immunohistochemistry, Abortion, Arabian horses, Egypt.

Dedication

Dedicated to my Family

... Father

... Mother

.... Wife

..... My Brothers and

Sisters

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List of Abbreviation

A	Adenine
AA	Amino Acid
ADCC	Antibody-Dependent Cellular Cytotoxicity
AGID	Agar Gel Immunodiffusion
AHV-1	Asenine Herpes Virus Type 1
AHV-2	Asenine Herpes Virus Type 2
AHV-3	Asenine Herpes Virus Type 3
APC	Antigen Presenting Cells
APHIS-USDA	Animal And Plant Health Inspection Service- U.S. DEPARTMENT OF AGRICULTURE
BAC	Bacterial Artificial Chromosome
BHK	Baby Hamster Kidney
BMC	Blood Mononuclear Cells
BoHV	Bovine Herpesvirus
bp	Base Pair
C	Cytosine
CAM	Chorioallontoic Membrane
CD	Cluster Of Differentiation
CF	Complement Fixation
CMI	Cell Mediated Immunity
CNS	Central Nervous System
CSF	Cerebrospinal Fluid
CPE	Cytopathic Effect
CSPG	Chondroitin Sulfate Proteoglycans
Ct	Cycle Threshold
CTL	Cytotoxic T Cells
CTLp	Cytotoxic T Cells Precursor
D	Aspartic Acid
DNA	Deoxyribonucleic Acid
DNase	Deoxy Ribonuclease Enzyme
dpi	Day Post Infection
DPOL	DNA Polymerase
dsDNA	Double-Stranded DNA
E Derm	Equine Derm Cells
EAV	Equine Abortion Virus

EBV	Epstein Barr Virus
EC	Endothelial Cells
ECE	Embryonated Chicken Egg
ECM	Extracellular Matrix
EDTA	Ethylene Diamine Tetra Acetic Acid
EEK	Equine Embryonic Kidney
EEL	Equine Embryonic Lung
EFKI	Equine Fetal Kidney Cells
EHM	Equine Herpes Myeloencephlopathy
EHV	Equine Herpes Viruse
EHV-1	Equine Herpes Virus Type 1
EHV-2	Equine Herpes Virus Type 2
EHV-3	Equine Herpes Virus Type 3
EHV-4	Equine Herpes Virus Type 4
EHV-5	Equine Herpes Virus Type 5
EHV-8	Equine Herpes Virus Type 8
EHV-9	Equine Herpes Virus Type 9
ELISA	Enzyme Linked Immunosorbent Assay
EM	Electron Microscope
EMPF	Equine Multinodular Pulmonary
ERV	Equine Rhinopneumonitis Virus
EVA	Equine Viral Arteritis
E%	Amplification Efficiency
FA	Fluorescent Antibody
FAT	Fluorescent Antibody Technique
FAM	6-Carboxyfluorescein
FC	Fragment Crystallizable Region
fg	Femto Gram
G	Guanine
g	G Force
gB	Glycoprotein B
gC	Glycoprotein C
gD	Glycoprotein D
gE	Glycoprotein E
gG	Glycoprotein G
gH	Glycoprotein H
GHV-1	Gazelle Herpes Virus Type 1