



Cairo University
Faculty of Science
Department of Chemistry

**Biochemical and Immunochemical
Studies on *Vertical Transmission*
*Of Hepatitis C Virus Infection***

Thesis

Submitted for the degree of PhD in Biochemistry

By

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ABSTRACT

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Mother-to-infant transmission of HCV represents the major cause of pediatric HCV infection today. Here, HCV-NS4 antigen was identified in serum samples from infected pregnant women and their cord using specific HCV-NS4 antibody and Western blot at 27-kDa. The HCV-NS4 antigen was purified and characterized from serum and cord samples as protein in nature. The vertical transmission of HCV-NS4 antigen occurs, the biochemical characters of this antigen did not changed when it transmitted to neonates. The ELISA detected the HCV-NS4 antigen in sera of infected pregnant women with detection rate (24.5%) in serum, with detection rate (24.5%) in cord samples and with vertical transmission (100%). Vertical transmission was not influenced by mode of delivery.

Key words: *Hepatitis C Virus*, HCV-NS4 antigen, *Vertical Transmission*

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بسم الله الرحمن الرحيم
"رب اشرح لي صدري
ويسر لي أمري واحلل عقدة
من لساني يفقهوا قولي"
صدق الله العظيم



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Dedication

To my Loved Parents,

To my Dear Brothers,

To my Dear Sisters

To my Beloved and Supportive Hasband Fawaz,

To my Beloved Sons Ibrahim and Omar.

Hala M. El-Kafrawy

2009



List of abbreviations

ALT	Alanine amino transferase
Anti- HCV	Antibodies to hepatitis C virus
AST	Aspartate amino transferase
BCIP	5-Bromo-9-Chloro-3-Indolyl Phosphate
b- DNA	Branched -DNA
BSA	Bovine serum albumin
C	Core
CDC	Centers for disease control
CE	Capillary electrophoresis
CLD	Chronic liver disease
CMI	Cell-mediated immunity
E	Envelope
ELISA	Enzyme linked immunosorbent assay
EM	Electron microscopy
EVR	Early virologic response
HAV	Hepatitis A virus
HBV	Hepatitis B virus
HCC	Hepatocellular carcinoma
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
HPLC	High performance liquid chromatography
HPRT	Hypoxanthin guanine phosphoribosyl transferase
HVR	Hypervariable region
IDUs	Infection drug users
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IHL	Intrahypatic lymphocytes

INF	Interferon
ISDR	Interferon sensitivity determining region
kDa	Kilo Dalton
KV	Kilo volt
mAb	Monoclonal antibody
MHD	Maintenance haemodialysis
MTP	Multi transmitted patients
NAA	Nucleic acid amplification
NANBH	Non A and non B hepatitis
NBT	Nitro blue tetra-zolium
NC	Nitrocellulose
NS	Non structural protein
PBS	Phosphate buffered saline
PCR	Polymerase chain reaction
PEG-INF	Pegylated Interferon
PNB	Para – nitrobenzoic acid
PPD	Purified protein derivative
PPD-S	Purified protein derivative florescence Seibert
RBV	Riboflavine
RIBA	Recombinant immunoblot assay
RT	Room temperature
SDS-PAGE	Sodium dodecyl sulfate- polyacrylamide gel electrophoresis
STD	Sexual transmitted disease
SVR	Sustained virologic response
TAH	Transfusion associated hepatitis
TBS	Tris buffered saline
TCA	Trichloro acetic acid

TEMED	Tetra ethylene diamine
TTI	Transfusion transmitted infection
UT	Untranslated region
UV	Ultraviolet
V	Voltage
WHO	World Health Organization

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