

**Assessment of the immunodiagnostic potential
of polypeptides derived from Hepatitis C Virus
non structural proteins**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

" قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ
الْحَكِيمُ "

صدق الله العظيم

سورة البقرة, الآية ٣٢

I declare that this thesis has been composed by myself and the work of which it is a record has been done by myself. It has not been submitted for a degree at this or any other university.

MAI ZEIN EL-ABDEEN MOHAMED ZEDAN

**DEDICATED TO
MY FATHER,
MY MOTHER
AND
MY BROTHER**

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List of Abbreviations

aa:	Amino acid
AASLD:	American Association for the Study of Liver Diseases
Ag:	Antigen
ALT:	Alanine aminotransferase
antimir:	Anti micro RNA
AP:	Alkaline phosphatase
APCs:	Antigen presenting cells
ATP:	Adenosine 5`-triphosphate
ATPase:	Adenosine 5`-tri phosphatase
BCA:	Bicinchoninic acid
BCIP:	5-Bromo-4-Chloro-3-indolyl phosphate
bdNA:	branched DNA
BOC:	Boceprevir
bp:	Base pair
BSA:	Bovin serum Albumin
cDNA:	complementary deoxyribonucleic acid
CHC:	Chronic hepatitis C
Chisam:	Chloroform-iso-amyl alcohol
CLDN 1:	claudin-1
CMV:	Cytomegalovirus
CTLs:	Cytotoxic T lymphocytes
DAAs:	Directly acting antiviral agents
dATP:	2`-deoxy adenosine 5`- triphosphate
dCTP:	2`-deoxy cytosine 5`- triphosphate
DCV:	Daclatasvir
dGTP:	2`-deoxy guanosine 5`- triphosphate
DNase I:	Deoxyribonuclease I
dNTP:	2`-deoxyribonucleoside 5`- triphosphate
dTTp:	2`-deoxy thymidine 5`- triphosphate
<i>E. coli</i> :	<i>Escherichia coli</i>
E:	Envelope
EASL:	European Association for the Study of the Liver
EDTA:	Ethylene diamine tetra acetic acid
ELISA:	Enzyme-linked immunosorbent assay
ER:	Endoplasmic reticulum
FP:	Forward primer

G:	genotype
GST:	Glutathione-S-transferase
GTPase:	Guanosine tri phosphatase
HAV:	Hepatitis A Virus
HBV:	Hepatitis B Virus
HCC:	Hepatocellular carcinoma
HCV:	Hepatitis C Virus
HDV:	Hepatitis D Virus
HEV:	Hepatitis E Virus
HGV:	Hepatitis G Virus
HLA:	Human leukocyte antigen
hr:	hour
HVR:	Hyper variable region
Ig:	Immunoglobulin
IgVR:	Intergenotypic variable region
IMPDH:	inosine monophosphate dehydrogenase
INF:	Interferon
IPTG:	Isopropyl thio- β -D-galactoside
IRES:	internal ribosomal entry site
IVDU:	Intravenous drug use
Kb:	Kilo base
kDa:	Kilo dalton
Kh:	Kilohertz
LB media:	Lauria-Bertani media
LDL:	Low-density lipoprotein
M.W. :	Molecular weight
MHC:	Major histocompatibility complex
miRNA:	MicroRNA
mRNA:	Messenger RNA
MUs:	million units
MVA:	Modified vaccinia Ankara
nAbs:	Neutralizing antibodies
NANBH:	non-A, non-B hepatitis
NAT:	Nucleic acid testing
NBT:	Nitro Blue Tetrazolium
NIs:	nucleoside analogue inhibitors
NK:	Natural killer cells
NKT:	Natural killer T cells
NNIs:	non-nucleoside analogue inhibitors

NNPIs:	non-nucleoside polymerase inhibitors
NPIs:	nucleoside polymerase inhibitors
NS:	Nonstructural
Nt:	Nucleotide
NTP:	Nucleoside tri phosphohate
NTPase:	Nucleoside tri phosphatase
O.D.:	Optical density
ORF:	Open reading frame
P7:	Protein 7
PAT:	Parenteral antischistosomal therapy
PBS:	Phosphate buffered-saline
PBS-T20:	Phosphate buffered-saline-Tween 20
PCR:	Polymerase chain reaction
PEG-8000:	polyethylene glycol-8000
PegIFNS:	Peg interferon
PIs:	Protease inhibitor
PMSF:	Phenyl methyl sulphonyl fluoride
P-NPP:	<i>p</i> -nitro phenyl phosphate
PVDF:	Polyvinylidene fluoride
RBV:	Ribavirin
RdRp:	RNA-dependent RNA polymerase
RIBA:	Recombinant immunoblot assay
RNase A:	Ribonuclease A
RP	Reverse primer
rpm:	Revolution per minute
SDS:	Sodium dodecyl sulfate
SDS-PAGE:	SDS-Polyacrylamide gel electrophoresis
Sj26 GST	<i>Schistosoma-japonicum</i> 26kDa glutathione S transferase
SiRNA:	Small interfering RNA
SOF:	Sofobuvir
SR-B:1	scavenger receptor, class B type I
STE:	Sodium Tris EDTA
SVR:	Sustained virologic response
TAE:	Tris acetate EDTA
TEMED:	N,N,N',N'-tetramethyl ethylene diamine
TH:	T helper cells
TJ:	Tight junction
TLR:	Toll-like receptor
TMA:	Transcription-mediated amplification

TNF:	Tumor necrosis factor
Tris:	Tris (hydroxyl methyl)aminomethane
TVR:	Telaprevir
UTR:	Untranslated region
UV:	Ultra violet light
WHO:	World Health Organization
X-gal:	5-bromo-4-chloro-3-indolyl- β -D-galactopyranoside