



Faculty of Science
Department of Zoology

Molecular and Biological characterization of homemade recombinant human interferon alpha 2b

A Thesis

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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 آية: 32)

Dedication

To my beloved parents,

To my husband

To my sisters,

To my sons

Abdelrahman

Amir

Yaseen

And

To my daughter

Lamees

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List of Abbreviations

Abbrev.	Full-term
ACN	Acetonitrile
AMBIC	Ammonium bicarbonate
BABs	Binding antibodies
BME	Beta-mercaptoethanol
BSA	Bovine serum albumin
C _{max}	Maximum plasma concentration
CPE	Cytopathic effect
CQAS	Critical quality attributes
CTLs	Cytotoxic T lymphocytes
CV	Column volume
Cys	Cysteines
DTT	Dithiothreitol
<i>E.coli</i>	<i>Escherichia Coli</i>
EDTA	Ethylene diamine tetra acetic acid
ESI	Electrospray ionization
FDA	Food and drug administration
GAS	Gamma activation system
HCC	Hepato-cellular carcinoma

List of Abbreviations (Cont.,)

Abbrev.	Full-term
HCV	Hepatitis C virus
HCV-4	Hepatitis genotype 4
HDCC	High density-cell cultivation systems
HFBA	Heptafluorobutryric acid
IAA	Iodoacetimide
IBs	Inclusion bodies
IC	In ion-exchange chromatography
i.m	Intramuscular
IFNs	Interferons
IRF	Interferon regulating factor
ISGS	Interferon stimulating genes
ISRE	Interferon stimulating response element
JAK	Janus kinase
LAL	Limulus ameocyte lysate
MALDI	Matrix-assisted laser desorption/ionization
MS	Mass spectrometry
Nabs	Neutralizing antibodies
NP-HPLC	Normal phase high performance liquid

List of Abbreviations (Cont.,)

Abbrev.	Full-term
NPIA	Non-pegylated interferon
ORF	Open reading frame
PCR	Polymerase chain reaction
PEG	Polyethylene glycol
PEG-IFNs	Pegylated interferons
PFPA	Pentafluoropropionic acid
RhIFN- α 2b	Recombinant human interferon alpha 2b
RPC	Reversed phase chromatography
RP-HPLC	Reversed phase high performance liquid
RT	Retention time
SH	Sulfhydryl
SDS-PAGE	Sodium dodecyl sulfate-polyacrylamide gel
STAT	Signal transducer and activator of transcription
T _{1/2}	Half-life time
TBRI	Theodor Bilharz Research Institute
TFA	Trifluoroacetic acid
T _{max}	Maximum time

List of Abbreviations (*Cont.*,)

Abbrev.	Full-term
TOF	Time of flight
TYK	Tyrosine kinase
VSV	Vesicular Stomatitis Virus

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