

**ANTIVIRAL AND IMMUNOMODULATORY  
EFFECTS OF ORAL BOVINE LACTOFERRIN  
THERAPY AMONG PATIENTS WITH CHRONIC  
HEPATITIS C**

*Thesis Submitted for*

*Partial fulfillment of M.D degree in Medical Microbiology and Immunology*

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**2015**

بسم الله الرحمن الرحيم

"قالوا سبحانك لا علم لنا الا  
ما علمتنا انك انت العليم  
الحكيم"

صدق الله العظيم

سوره البقره الايه 32

### ***Acknowledgement***

First and foremost thanks and deepest gratitude are due to **Allah** the most beneficial and merciful whose magnificent help was the main factor in accomplishing this study.

I would like to express my grateful gratitude and respect to ***Prof. Dr Amany Mostafa*** Professor and head of Medical Microbiology and Immunology department- Faculty of Medicine- Ain Shams University.

I wish to express my deepest gratitude and respect to all my supervisors for their fine encouragement, guidance and help.

I am deeply grateful to ***Prof. Dr. Amany Tharwat Abdel Rahman***, Professor of Medical microbiology and Immunology, Ain Shams University, for the great support and encouragement she gave me throughout the whole study. It is an honor to work under her guidance and supervision.

I am very grateful to ***Dr. Ayman Asaad Ebrahim***. Assistant Professor of Medical microbiology and immunology, Ain Shams University, for his sincere support and guidance.

I am very grateful to ***Dr. Reham Ali Ahmed Khalifa*** Assistant Professor of Medical microbiology & Immunology,

faculty of Medicine, Ain Shams University, for her active participation, effective help, careful comments and kind supervision throughout every step of this work.

I would also like to thank ***Prof. Dr Abdel Fattah Abdel Salam***, Professor of internal medicine, Ain Shams University for his close supervision and his continuous help throughout the study.

Special thanks to ***Prof. Dr. Nadia El Ansary*** Professor of Internal Medicine, Ain Shams University for her active participation in the study.

I would like also to thank my family, for their helpful assistance and moral support.

## Dedication

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TO MY FATHER (ALLAH BLESS HIM)

MY MOTHER

MY Wife

FOR EVERYTHING THEY DID FOR ME ALL THROUGH THIS STUDY

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## **List of abbreviations**

<b>ADCC</b>	Antibody dependant cellular cytotoxicity
<b>AIDS</b>	Acquired immune deficiency syndrome
<b>ALT</b>	Alanine transaminases
<b>AST</b>	Aspartate transaminases
<b>ARFP</b>	Altrnate reading frame protein
<b>BCG</b>	Bacilli Calmette Gurin
<b>BCL6</b>	B cell lymphoma
<b>BLf</b>	Bovine lactoferrin
<b>CBC</b>	Complete blood count
<b>CDC</b>	centers of diseases control and prevention
<b>CF</b>	cystic Fibrosis
<b>CHC</b>	Chronic hepatitis C
<b>CMI</b>	Cell mediated immunity
<b>CMV</b>	Cytomegalovirus
<b>CSF</b>	Cerbro-spinal fluid
<b>CT</b>	Computed Tomography
<b>CTL</b>	Cytotoxic T lymphocyte
<b>CTNN</b>	Cadharin associated protein
<b>DCs</b>	Denderatic cells
<b>DNA</b>	Deoxyribonucic acid
<b>DTH</b>	Delayed type hypersensitivity
<b>ELFA</b>	Enzyme linked Fluorescence assay
<b>ELISA</b>	Enzyme linked immunosorbant assay
<b>ETEC</b>	Enterotoxigenic E.Coli

<b>ETR</b>	End of treatment response
<b>EVR</b>	Early virological response
<b>FDA</b>	Food and Drug Administration
<b>GAG</b>	Glucosaminoglycan
<b>GCSF</b>	Granulocyte colony stimulating factor
<b>GGT</b>	Gamma glutamyl transpeptidase
<b>hLf</b>	Human Lactoferrin
<b>HCC</b>	Hepatocellular carcinoma
<b>HCV</b>	Hepatitis C virus
<b>HIV</b>	Human Immune Deficiency Virus
<b>HS</b>	Heraran sulphate
<b>HSR</b>	Herpes simplex receptor
<b>HSV</b>	Herpes simplex virus
<b>IFN</b>	Interferon
<b>IL</b>	Interleukin
<b>IRES</b>	Internal Ribosome Entry Site
<b>IRF3</b>	Interferon releasing factor 3
<b>kDa</b>	kiloDalton
<b>LAF</b>	Lactoferrin
<b>LAK</b>	Lymphokine Activated Killer cell
<b>LGL</b>	Large Granular Leucocyte
<b>LFTs</b>	Liver functions tests
<b>LPS</b>	Lipopolysaccharides
<b>MHC</b>	Major Histocompatibility Complex
<b>MLE</b>	Master lot entry
<b>MPNG</b>	Membrano-proliferative glomerulonephritis

<b>NO</b>	Nitric Oxide
<b>NK</b>	Natural killer cell
<b>NKT</b>	Natutal Killer T cell
<b>NS</b>	Non structural protein
<b>OAS1</b>	Oligoadenylate synthatase
<b>OVA</b>	Ovaalbumin
<b>PBMCs</b>	Peripheral Blood Monocytes
<b>PCR</b>	polymerase chain reaction
<b>PEG-IFN<math>\alpha</math></b>	Pegylater Interferon $\alpha$
<b>PMNLs</b>	Polymorph nuclear leucocytes
<b>PNALT</b>	Persistant Normal ALT
<b>ROS</b>	Reactive oxygen species
<b>rNTP</b>	Ribo-Nuclouside Triphosphatase
<b>SC</b>	Subcutaneous
<b>STD</b>	Sexually transmitted disease
<b>SP</b>	Species
<b>SPR</b>	Slow phase reaction
<b>SRB</b>	Sheep red blood cells
<b>SVR</b>	Sustained virological response
<b>TBK</b>	TANK binding kinase
<b>TCR</b>	T Cell Receptor
<b>TF</b>	Transferrin
<b>TH1</b>	T helper 1
<b>TH2</b>	T helper 2
<b>T<sub>m</sub></b>	Melting temperatures
<b>TMA</b>	Transcription mediated amplification

<b>TNF</b>	Tumor necrosis factor
<b>TLRs</b>	Toll like receptors
<b>Treg</b>	T regulatory cell
<b>US</b>	United states
<b>UTR</b>	Untranslated Replication Particles
<b>VAP</b>	Vesicle Associted membrane Protein

# ***Introduction***