

**Lipoprotein modulators relevant to certain cardiovascular risk
factors in diabetes mellitus and hyperlipidaemia**

By

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A thesis submitted in the fulfillment of the requirements for the
award of the degree of Doctor of Philosophy
(Biochemistry)

Faculty of Pharmacy
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2008

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى

(وَقُلْ أَعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ وَسَتُرَدُّونَ إِلَى عَالِمِ
الْغَيْبِ وَالشَّهَادَةِ فَيُنَبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ)

(التوبة-١٠٥)

DEDICATION

I wish to dedicate this thesis to

- The soul of my mother.
- My father who has supported me all the way since the beginning of my studies
- Also, this thesis is dedicated to my husband who has been a great source of motivation and inspiration.
- My brother Ahmad and my sister Salwa, who believed in me and my ability to achieve my ambitions.



Nahla Younis

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ACKNOWLEDGEMENTS

I would like to formally thank the following people for their role in making this study possible:

Professor Mohamed M El-Seweid: Professor of Biochemistry, Zagazig University for his kind supervision and support since I started my postgraduate studies.

Professor Paul N Durrington Professor of medicine, Manchester University for his valuable supervision, guidance and discussions throughout my years in Manchester.

Dr Sousou I Ali Professor of Biochemistry, Zagazig University for her supervision, valuable advice and encouragement during the progress of this work

Dr Valentine Charlton-Menys, Research Fellow, Clinical and Laboratory Sciences, Manchester University for his expert practical supervision and sincere effort to facilitate the difficulties during the progress of that work.

Phillip Pemberton, clinical research, Manchester Royal Infirmary for his kind assistance in setting and development of the apoB ELISA method used in that study.

Dr Handrean Soran, consultant in the Manchester Royal Infirmary, for his appreciated contributions in the recruitment of patients and volunteers.

People from the lipoprotein research group Jelena Chobatova, Jesica Knox and Ashley Moorhouse for their kind help in processing samples by auto-analyzer.

Of course, I'll not forget the **Egyptian government** that sponsored this work financially (one of The Egyptian Ministry of Higher Education Channel mission schemes granted to faculty of Pharmacy, Zagazig University).

LIST OF ABBREVIATIONS

AGEs	Advanced glycation end products
ApoA-I	Apolipoprotein A-I
ApoB100	Apolipoprotein B100
ApoE	Apolipoprotein E
BCA	Bicinchoninic acid
BMI	Body mass index
BSA	Bovine serum albumin
CE	Cholesterol esters
CETP	Cholesteryl ester transfer protein
CHD	Coronary heart disease
DM-LLT	Type 2 diabetes patients who were receiving lipid lowering treatment
DM-noLLT	Type2 diabetes patients who were not receiving lipid lowering treatment
DPBS	Dulbeccos phosphate buffered saline
EDTA	Ethylenediamine tertracetic acid
ELISA	Enzyme-linked immunosorbant assay
ER	Endoplasmic reticulum
FCS	Foetal calf serum
FH	Familial hypercholesterolaemia
GA	Glycolaldehyde
GDM	Gestational diabetes mellitus
GlycLDL	Glycated low density lipoproteins
HDL	High density lipoproteins
HDL-C	HDL-cholesterol
HL	Hyperlipoproteinaemia
HL-LLT	Hyperlipidaemic patients who were receiving lipid lowering treatment
HL-noLLT	Hyperlipidaemic patients who were not receiving lipid lowering treatment
IDL	Intermediate density lipoproteins
LCAT	Lecithin-cholesterol acyl transferase
LDL	Low density lipoproteins
LDL1, 2	LDL subclasses 1 and 2

LDL3	LDL subclass 3
LDL-C	LDL-cholesterol
LDL-R	LDL- receptors
LPDS	Lipoprotein deficient serum
LPL	Lipoprotein lipase
LPO	Lipid peroxidation/peroxides
M	Mean
MG	Methylglyoxal
MODY	Maturity-onset diabetes in young
MTP	Microsomal transfer protein
NAD ⁺	Nicotinamide adenine dinucleotide
NADH	Nicotinamide adenine dinucleotide-H
NEAA	Non-essential amino acids
NEFA	Non-esterified fatty acids
Ox-LDL	Oxidized LDL
PBS	Phosphate-buffered saline
PKC	Protein kinase C
PMA	Phorbol 12-myristate 13- acetate
PON-1	Paraoxonase-1
PVD	Peripheral vascular disease
REM	Relative electrophoretic mobility
SEM	Standard error of mean
t.LDL	Total LDL
TG	Triglyceride
TNBS	Trinitrobenzenesulphonic acid
TNF- α	Tumour necrosis factor-alpha
TNP	Trinitrophenyl
VLDL	Very low density lipoproteins
ω -3 PUFA	Omega-3 polyunsaturated fatty acids
WHO	World health organisation

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