

**Cardiology Department** 



## Coronary Atherosclerosis in Diabetic Patients Type 2 and Relation to Lipid Profile and Glycemic Control

Thesis Submitted in the Partial Fulfillment of Master's Degree in Cardiology

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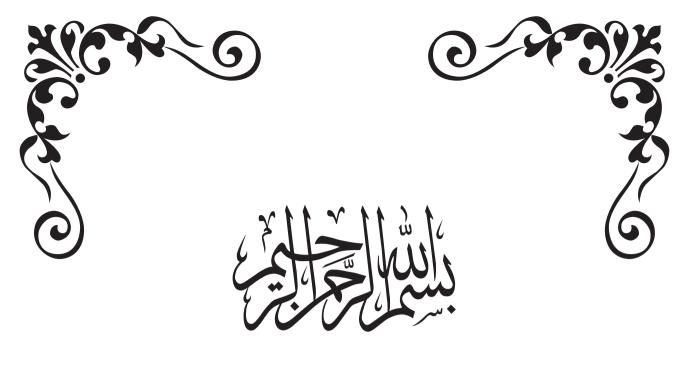
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﴿ قَالُوا سُبْحَانُكَ لاَ عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا اللهِ قَالُوا سُبْحَانُكَ لاَ عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا اللهِ وَاللَّهُ الْحَكِيمُ ﴾ إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ ﴾





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## Dedication

I humbly dedicate this thesis to the light of my life, my lovely and warm family, who never hesitated to help and assist me throughout this work

Lastly, I dedicate this thesis to the soul of my beloved brother, the martyr Samy Abdul-Rahman.



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### **List of Abbreviations**

2D	2-dimentional
2hPG	2-hour post prandial glucose
ABCA1	adenosine triphosphate binding cassette transporters A1
ABCG1	adenosine triphosphate binding cassette transporters G1
ACC	American College of Cardiology
ACS	acute coronary syndrome
ADA	American Diabetes Association
ADH	autosomal dominant hypercholesterolemia
AGE	advanced glycated end-products
AHA	American Heart Association
AIDS	acquired immunodeficiency syndrome
AMI	acute myocardial infarction
ANGPTL3	angiopoietin-like protein-3
Ao	aorta
Аро А	apolipoprotein A
Аро В	apolipoprotein B
Аро С	apolipoprotein C
Аро Е	apolipoprotein E
ARIC	Atherosclerosis Risk in Communities
ASCVD	atherosclerotic cardiovascular disease
BUN	blood urea nitrogen

CA	coronary angiography
CAC	coronary artery calcium
CAD	coronary artery disease
CAN	cardiovascular autonomic neuropathy
СВС	complete blood count
CCS	coronary calcium score
СЕТР	cholesteryl ester transfer protein
CI	confidence interval
CKD	chronic kidney disease
СМ	chylomicrons
СТ	computed tomography
CVD	cardiovascular disease
DECODE	Diabetes Epidemiology: Collaborative analysis of Diagnostic criteria in Europe
DES	drug-eluting stent
DGAT1	diacylglycerol acyltransferase 1
DM	diabetes mellitus
DNA	deoxyribonucleic acid
DPN	distal symmetric polyneuropathy
DR	diabetic retinopathy
EAS	European Atherosclerosis Society
EASD	European Association for the Study of Diabetes

ECG	electrocardiogram
EF	ejection fraction
EL	endothelial lipase
ESC	European Society of Cardiology
ESRD	end stage renal disease
FCS	familial chylomicronemia syndrome
FFA	free fatty acids
FH	familial hypercholesterolemia
FPG	fasting plasma glucose
GDM	gestational diabetes mellitus
GFR	glomerular filtration rate
GLUT-4	glucose transporter 4
GWASs	genome-wide association studies
HAART	highly active antiretroviral therapy
HbA <sub>1C</sub>	glycated hemoglobin A <sub>1C</sub>
HDL	high-density lipoprotein
HeFH	heterozygous familial hypercholesterolemia
HIV	human immunodeficiency virus
HL	hepatic lipase
HoFH	homozygous familial hypercholesterolemia
HTN	hypertension
IDL	intermediate-density lipoprotein
IFG	impaired fasting glucose

IGT	impaired glucose tolerance
IQR	interquartile range
IR	insulin resistance
IV	intravenous
KDIGO	Kidney Disease: Improving Global Outcomes
LA	left atrium
LAD	left anterior descending coronary artery
LCAT	lecithin-cholesterol acyltransferase
LCX	left circumflex coronary artery
LDL	low-density lipoprotein
LMCA	left main coronary artery
Lp(a)	lipoprotein(a)
L-PDA	left posterior descending artery
LPL	lipoprotein lipase
L-PLB	left posterolateral branch
LV	left ventricular
LVEDD	left ventricular end diastolic diameter
LVESD	left ventricular end systolic diameter
mAbs	monoclonal antibodies
MSCT	multi-slice computed tomography
MTTP	microsomal triglyceride transfer protein
NO	nitric oxide
NPC1	Niemann-Pick type C disease



NS	not significant
NT-proBNP	N-terminal pro b-type natriuretic peptide
NYHA	New York Heart Association
OGTT	oral glucose tolerance test
PAD	peripheral arterial disease
PAI-1	plasminogen activator inhibitor-1
PCSK9	proprotein convertase subtilisin/kexin type 9
PG	plasma glucose
PI3K	phosphatidylinositide 3-kinase
РКС	protein kinase C
PLTP	phospholipid transfer protein
PPARy	peroxisome proliferator-activated receptor y
PV	pulmonary vein
RA	right atrium
RAA	right atrial appendage
RAGE	AGE receptor
RCA	right coronary artery
ROC	receiver-operator characteristic
ROS	reactive oxygen species
R-PDA	right posterior descending artery
R-PLB	right posterolateral branch
RV	right ventricular
RVOT	RV outflow tract

SD	standard deviation
SMPD1	sphingomyelin phosphodiesterase 1
SNPs	single-nucleotide polymorphisms
SPSS	statistical package for social science
SRA	macrophage scavenger receptor A
SR-B	scavenger receptor B
SVC	superior vena cava
T1DM	type 1 diabetes mellitus
T2DM	type 2 diabetes mellitus
TG	triglyceride
TG tPA	triglyceride tissue plasminogen activator
	<del></del>
tPA	tissue plasminogen activator
tPA TRL	tissue plasminogen activator triglyceride-rich lipoproteins
tPA TRL TSH	tissue plasminogen activator triglyceride-rich lipoproteins thyroid-stimulating hormone
tPA TRL TSH UACR	tissue plasminogen activator  triglyceride-rich lipoproteins  thyroid-stimulating hormone  urine albumin to-creatinine ratio
tPA TRL TSH UACR USF1	tissue plasminogen activator  triglyceride-rich lipoproteins  thyroid-stimulating hormone  urine albumin to-creatinine ratio  upstream transcription factor 1

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