The Role of Apelin gene polymorphism in obesity

A thesis submitted for the partial fulfillment of Master Degree in Pharmaceutical Sciences (Biochemistry)

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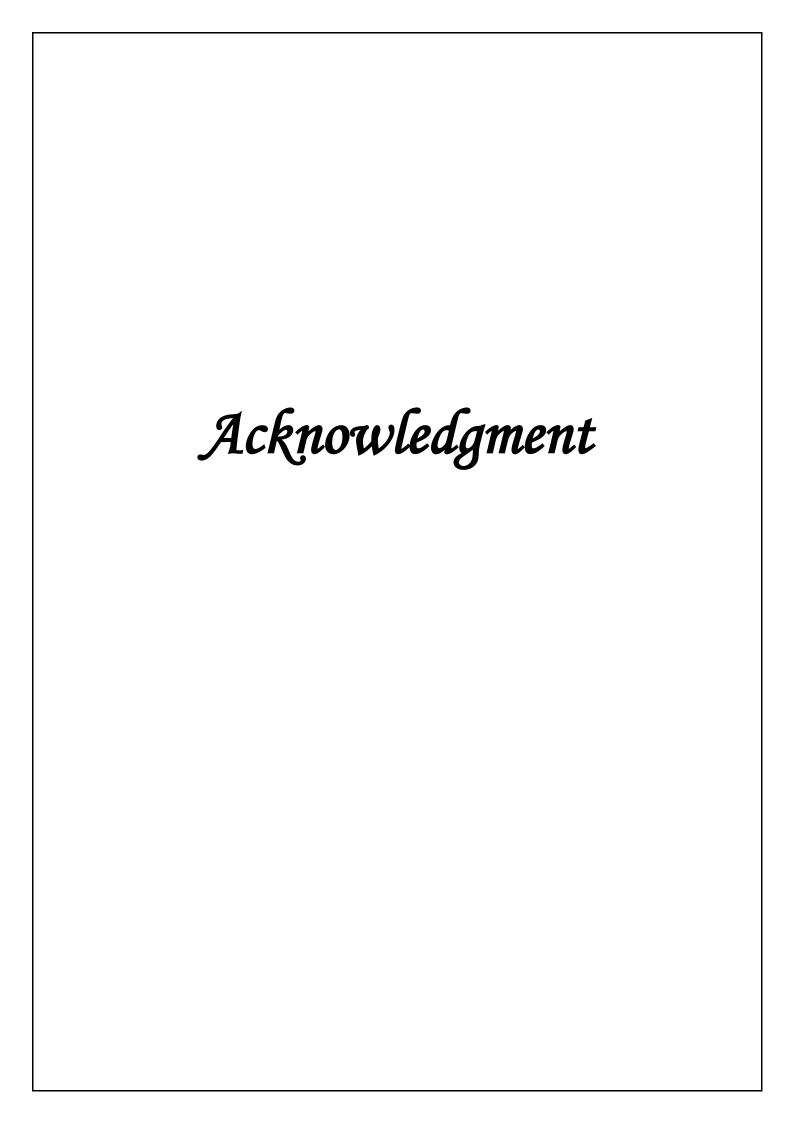
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بسم الله الرحمن الرحيم

ا وَعَلَّمَ آدَمَ الأَسْمَاء كُلَّهَا ثُمَّ عَرَضَهُمْ عَلَى الْمَلائِكَةِ فَقَالَ أَنبِئُونِي بِأَسْمَاء هَوُلاء إِن كُنتُمْ صَادِقِينَ قَالُواْ سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ * قَالُواْ سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ * الْحَكِيمُ الْحَلَيْمُ الْحَكِيمُ الْحَكِيمُ الْحَكَيْمُ الْعَلَيْمُ الْحَكَيْمُ الْحَكَيْمُ الْعَلَيْمُ الْحَكِيمُ الْحَكِيمُ الْحَلِيمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلِيمُ الْحَلَيْمُ الْحَلَيْمُ الْحَلِيمُ الْحَلَيْمُ الْحَلِيمُ الْحَلَيْمُ الْمَلْكُونُ الْحَلَيْمُ الْحَلْمُ الْحَلَيْمُ الْحَلْمُ الْحِلْمِ الْحَلْمُ الْحَلْم

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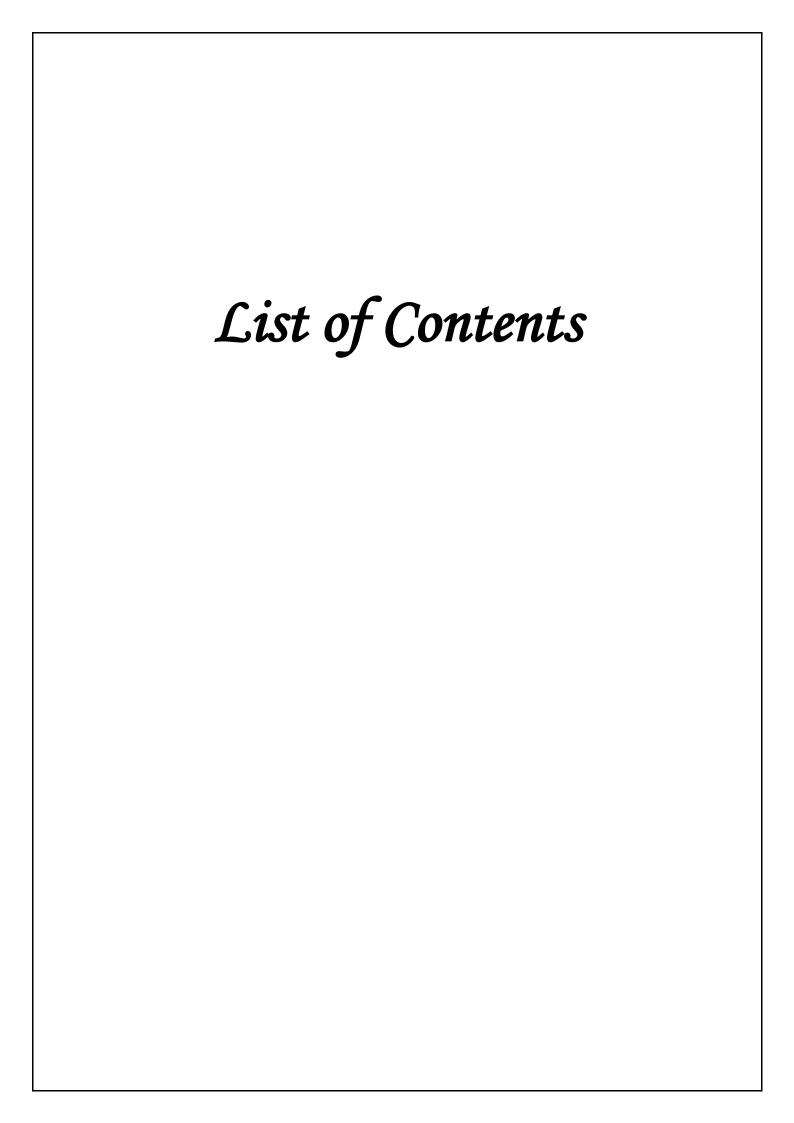
First of all, I do thank **Allah** for leading me all the way to accomplish this work. His guidance and enlightening my way were the ignition behind my persistence. May it be a step towards gaining **Allah**'s mercy and blessings and may **Allah** accept from us the good deeds, and forgive us in shortcomings.

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List of Abbreviations	

<u>Abbreviation</u> <u>Definition</u>

ACE2 Angiotensin converting enzyme 2

Akt Protein kinase B

ALT Alanine aminotransferase

AMPK Adenosine Mono Phosphate activated protein

kinase

APLN Apelin gene

AST Aspartate aminotransferase

BAT Brown adipose tissue

BMI Body mass index

CAD Coronary artery diseases

CNS Central nervous system

CV Cardiovascular

CVD Cardiovascular diseases

DM Diabetes mellitusECs Endothelial cells

ELISA Enzyme linked immunosorbent assay

eNOS Endothelial nitric oxide synthase

FAO Fatty acid oxidation

FPG Fasting plasma glucose

FSI Fasting serum insulin

GWAS Genome wide association studies

HDL-C High density lipoprotein cholesterol

HOMA-IR Homeostasis model assessment for insulin

resistance

HSL Hormone sensitive lipase

HWE Hardy-Weinberg equilibrium

IR Insulin resistance

Interleukin-6 IL-6

List of Abbreviations

LDL-C Low density lipoprotein cholesterol

LFT Liver function tests

MAPK mitogen-activated and ERK kinase

MCP-1 Monocyte chemoattractant protein 1

MetS Metabolic syndrome

NIDE National Institute of Diabetes and Endocrinology

PAI-1 Plasminogen activator inhibitor 1

PCR Polymerase chain reaction

QUICKI Quantitative insulin sensitivity check index

SAT Subcutaneous adipose tissue

SNP Single nucleotide polymorphism

T2DM Type 2 diabetes mellitus

TAG Triacylglycerols

TC Total cholesterol

TNF-α Tumor necrosis factor alpha

UCP Uncoupling protein

VAT Visceral adipose tissue

VEGF Vascular endothelial growth factor

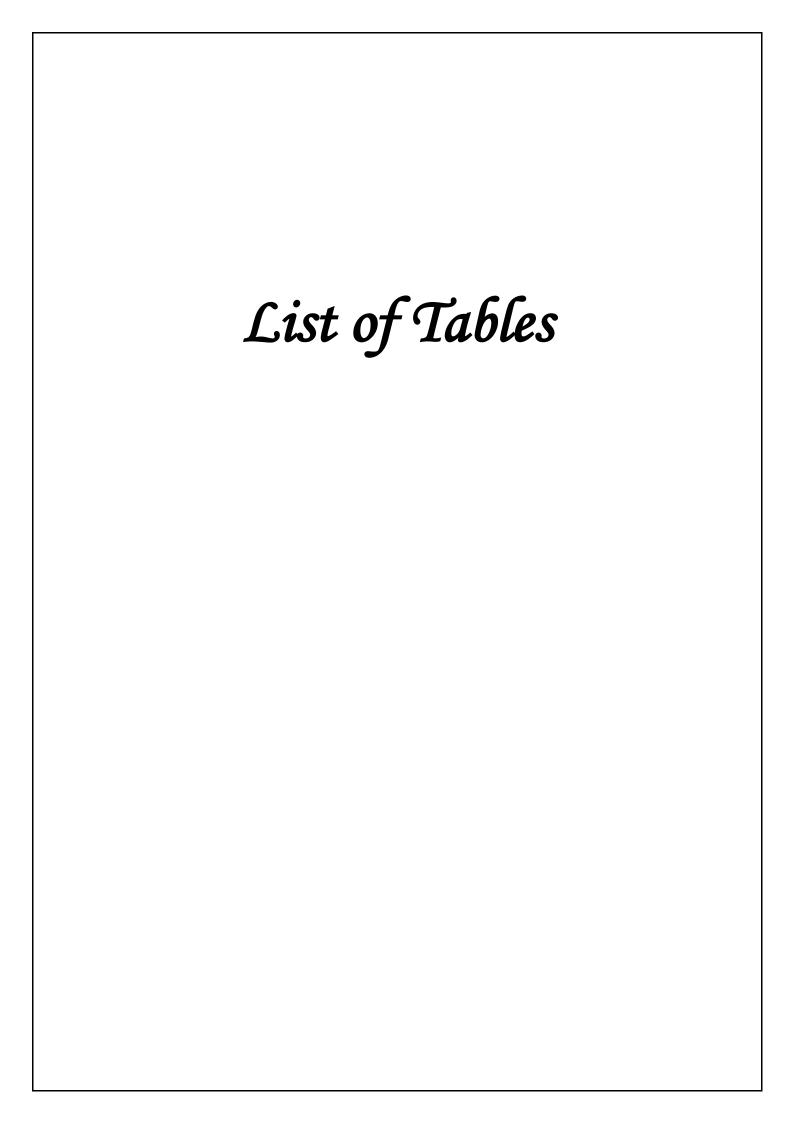
VLDL Very low density lipoprotein

WAT White adipose tissue

WC Waist circumference

WHO World health organization

WHR Waist to hip ratio



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