

# Leptin Gene Polymorphism and Insulin Resistance in Obese Diabetic Patients: Pilot Study

#### Thesis

Submitted for Partial Fulfillment of Master Degree in Clinical Pathology

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# **List of Abbreviations**

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Abb.	Meaning
ACC	: Acetyl-CoA carboxylase
AgRP	: Agouti-related protein
AHA	: American Heart Association
AMPK	: Adenosine monophosphate-activated protein
	kinase
ANGPTL2	: Angiopoietin like protein 2
ANOVA	: Analysis of variance
ARC	: Arcuate nucleus
ATMs	: Adipose tissue macrophages
BBB	: Blood Brain Barrier
BMI	: Body Mass Index
CART	: Cocaine- and amphetamine-regulated
	transcript
CCL2	: CC-chemokine ligand 2
CDC	: Centers for Disease Control and Prevention
CPT-1	: Carnitine palmitoyl transferase -1
CRH	: Cytokine receptor homology
CSF	: Cerebrospinal fluid
Ct	: Cycle threshold
CXCL5	: CXC-chemokine ligand 5
cyclic AMP	: Cyclic adenosine monophosphate

Abb.	Meaning
dNTPs	: Deoxy nucleoside triphosphatre
dUTP	: Deoxyuridine triphosphatre
DXA	: Dual energy x-ray absorptiometry
EDTA	: Ethyl diamine tetra-acetic acid
EGIR	: European Group for the Study of Insulin
	Resistance
ELISA	: Enzyme linked immunosorbent assay
FBG	: Fasting blood glucose
<b>FFAs</b>	: Free fatty acids
FN III	: Fibronectin type I
FTO	: Fat mass and obesity associated gene
GLUT4	: Glucose transporter
gp130	: Glycoprotein 130
<b>GPR120</b>	: G-protein coupled receptor 120
HbA1c	: Glycated Hemoglobin
HDL	: High-density lipoprotein
HNF	: Hepatocyte nuclear factor
<b>HOMA-IR</b>	: Homeostasis model assessment of insulin
	resistance
HS	: Highly significant
IDF	: International Diabetes Federation
IFG	: Impaired fasting glycemia

<b>IGD</b> : Immunoglobulin like domain	
<b>IGR</b> : Impaired glucose tolerance	
IL : Interleukin	
IL-1Ra : IL-1 receptor antagonist	
IL-6r : IL-6 receptor	
<b>IPF</b> : Insulin promoter factor	
IR : Insulin resistance	
IRS : Insulin receptor substrate	
JAK2 : Janus kinase 2	
<b>Kb</b> : kilo bases	
<b>KDa</b> Kilodalton	
LEP : Leptin	
LR : Leptin receptor	
LRcyto : Leptin receptor cytoplasmic tail	
<b>LRecto</b> : Leptin receptor extracellular part	
<b>LRTM</b> : Leptin receptor transmembrane part	
<b>LVH</b> : left ventricular hypertrophy	
MC-4R : Melanocortin-4 receptor	
MCP-1 : Monocyte chemoattractant protein-1	
MetS : Metabolic syndrome	
<b>MODY</b> : Maturity onset diabetes of the young	
NAMPT : Nicotinamide phosphoribosyl transferase	

Abb.		Meaning
NCEP- ATPIII	:	National Cholesterol Education Program -
		Adult Treatment Panel III
NF-κB	:	Nuclear factor kappa B
NHLBI	:	National Heart Lung and Blood Institute
NPY	:	Neuropeptide Y
NPY-R	:	Neuropeptide Y receptor
NS	:	Non significant
nt	:	Nucleotide
NTD	:	N-terminal domain
ob gene	:	Obese gene
OBR	:	Obese gene receptor
OR	:	Odds ratio
PAI-1	:	Plasminogen activator inhibitor type 1
PBS	:	Phosphate buffer saline
PCR	:	Polymerase chain reaction
PGE2	:	Postaglandin E2
PI3K	:	Phosphatidylinositol-3'-kinase
PMN	:	Polymorphonuclear leukocytes
POMC	:	Pro-opiomelanocortin
PPAR γ	:	Peroxisome proliferator activated receptor
		gamma

: Retinol-binding protein 4

RBP4

Abb.		Meaning
RNA	:	Ribonucleic acid
Rpm	:	Revolutions per minute
S		Significant
S.insulin	:	Serum insulin
SCD	:	Stearoyl-CoA desaturase
SD	:	Standard deviation
SFRP	:	Secreted frizzled related protein
SNA	:	Sympathetic nerve activity
SNP	:	Single nucleotide polymorphism
SOCS	:	Suppressor of cytokine signaling
SPSS	:	Statistical package for Social Science
STAT3	:	Signal transducer and activator of transcription
T2DM	:	Type 2 diabetes mellitus
TE buffer	:	TRIS-EDTA buffer
TGFβ	:	Transforming growth factor beta
TNF	:	Tumour necrosis factor
Tyr	:	Tyrosine
WAT	:	White adipose tissue
WC	:	Waist circumference
WHO	:	The World Health Organization
$X^2$	:	Chi-Square test
α-MSH	:	Alpha-melanocyte stimulating hormone

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