ABBREVIATION

AC- adipogenic control

ACC- acetyl- CoA carboxylase

ADSF-adipose tissue specific factor

ACTB- actin beta

AgRP- Agouti-related protein

AKT/ PKB-Protein kinase B

AMPK- adenosine monophosphate activated protein kinase

AP2-Activating protein 2

APPL1- phosphotyrosine-binding domain and leucine zipper motif 1

ATF-adipogenic transcription factor

AT- Adipose tissue

ATM- adipose tissue macrophages

ATP- adenosine triphosphate

BD-Becton and Dickinson

BDNF- Brain-derived neurotrophic factor

BMI- Body Mass Index

BMP- bone morphogenetic proteins

BMPR- BMP receptors

BMSC- Bone marrow derived MSC

BST-Bone marrow stromal cell antigen

$CaCl_2$- calcium chloride

Cbfβ - co-activator core binding protein β

C/EBPB- CCAAT enhancer-binding protein β

CCl2 - C-C motif chemokine 2

CD - cluster of differentiation

cDNA- complementary DNA

CDSCO- Central Drugs Standard Control Organization

CEACAM- carcinoembryonic antigen-related cell adhesion molecule

chADSC- Control human Adipose Derived Stem Cells

CLS-crown like structures

COOH-carboxylic acid

CO-SMAD4- comediator SMAD-4

CPT-Carnitine palmitoyl transferase

CRP- C- reactive proteins

CREBP-cAMP Response element binding protein

CT- cycle threshold

CVD- Cardio Vascular Diseases

CXCL- chemokine (C-X-C motif) ligand

D- days

dl-deci litre

DLK-1 -Protein delta homolog 1

Dlx- Distal-Less Homeobox

DMEM- Dulbecco's Modified Eagle media

DMSO- dimethyl sulfoxide

DNA- deoxy ribonucleic acids

DPP-dipeptidyl peptidase

DR- direct repeat-1

d/w- distilled water

ECL- Enhanced Chemiluminiscence

EDTA- Ethylenediaminetetraacetic acid

ELISA- Enhanced linked immunosorbent assay

EL-Enicostemma littorale

ERK- extracellular signal regulated kinase

ESC-embryonic stem cells

F- Female

FABP4-fatty acid binding protein 4

FACS- Fluorescence-activated cell sorting

FAK-Focal adhesion kinase

FAS- Fatty Acid Synthase

FBS-fetal bovine serum

FFA- free fatty acids

FGF- Fibroblast Growth Factor

FITC- Fluorescein isothiocyanate

FIZZ -found in inflammatory zone

FOXO1- Forkhead box protein

FPG-Fasting plasma glucose

FSGS- focal and segmental glomerulosis

FSC- forward scatter

Gli- glioma-associated oncogene

GLP-glucagon-like peptide-1

Glut4- Glucose transporter type 4

GRB-Growth Factor Receptor Bound Protein

GSK-Glycogen synthase kinase

H- Hours

H_2O_2- hydrogen peroxide

hADSC- human Adipose Derived Stem Cells

HbA1c- Glycated haemoglobin

HDL- high density lipoprotein

HEPES- 4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid

HepG2- human liver cancer cell line

HGF- hepatocyte growth factor

HGP- hepatic glucose production

HIF1A- Hypoxia Inducing factor 1 alpha

HOX- Homeobox

HRP- Horseradish Peroxidise

HSC- hematopoietic stem cells

IBMX- isobutylmethylxanthine

IDO - Indoleamine 2 3 Oxygenase

IGF- insulin like growth factor

IgG- Immunoglobulin G

IKKβ- Inhibitor of IκB kinase

IL-interleukin

ILVs- intra-luminal vesicles

iPSC- induced pluripotent stem cells

IR- Insulin Receptor

IRS- Insulin Receptor Substrate

JAK-STAT- Janus kinase- signal transducer and activator of transcription

JNK- c-Jun N-terminal kinase

KCL- potassium chloride

kDa-kilo dalton

KH_2PO_4-Potassium dihydrogen phosphate

KLF-Kruppel-Like Factor

KO - Knock out

LDH - lactic acid dehydrogenase

LDL- low density lipoprotein

LIRKO- liver specific IR knock out-

LPL- Lipoprotein lipase

LPS- Lipopolysaccharide

LRP5- Low-density lipoprotein receptor-related protein 5

$MgSO_4$- magnesium sulfate

MAPK-Mitogen Activated Protein Kinase

MMP-Matrix metalloproteinases

MCH-melanin concentrating hormone

MCP-1-Monocyte Chemoattractant Protein-1

Met-Metformin

mg- milligram

MH- MAD homology 1

MHC-major histocompatibility complex

MHNO- metabolically healthy non-obese

MHO-metabolically healthy obese

miRNA- micro RNA

mM- millimolar

MONO- metabolically obese non obese

MOO-metabolically obese obese

mRNA-messenger ribonucleic acids

MS- metabolic syndrome

MSC-mesenchymal stem cells

MSX-Msh homeobox 1

mTOR- mammalian target of rapamycin

MTT- 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide

MYF-5- Myogenic factor

NADPH- nicotinamide adenine dinucleotide phosphate

NACL- sodium chloride

NBDG- 2-(N-(7-Nitrobenz-2-oxa-1,3-diazol-4-yl)Amino)-2-Deoxyglucose)

NEFA-non-esterified fatty acids

NFκB - nuclear factor κB kinase subunit β

ng-nano gram

NIDDM-non insulin dependent diabetes mellitus

NIH- National Institute of Health

NLRP3- nucleotide binding domain and leucine rich repeat containing protein

nm- nanometers

nM- nanomolar

NPY-Neuropeptide Y

OA-osteoarthritis

OCT 4 or POU5F1 - Octamer-Binding Transcription Factor

O.D- optical density

OGTT- oral glucose tolerance test

ohADSC- obese human Adipose Derived Stem Cells

ORG-obesity related glomerulopathy

ORO- Oil Red O

OTF-Osteogenic transcription factor

PAGE- poly acrylamide gel electrophoresis

PAI-plasminogen activator inhibitor

pAKT- Phosphorylated Protein kinase B (PKB)

PBS - Phosphate Buffered Saline

PBST- Phosphate Buffered Saline with Tween-20

PcG- Polycomb

PCR-polymerase chain reactions

PDT- population doubling time

PE-Phycoerythrin

Pebp2β- polyoma enhancer binding protein 2β

Pen-Strep- penicillin and streptomycin

PEPCK- Phosphoenolpyruvate carboxykinase

PFA- Paraformaldehyde

PGC-1α- Peroxisome proliferator-activated receptor-gamma coactivator 1 alpha

pH- Potential of Hydrogen

PI-propidium iodide

pIR – Phosphorylated -insulin receptor

PI3K- phosphoinositide 3-kinase

POMC- Proopiomelanocortin

PPAR- Peroxisome Proliferator-Activated Receptor

PRDM16-PR-domain containing 16

PREF1- preadipocyte factor-1

Ptc-receptors patched

PTPases- protein tyrosine phosphatase

R- receptors

RANTES-Regulated upon Activation

RELM- resistin like molecules

RNA- Ribonucleic acid

ROR- RAR-related orphan receptors

ROS-reactive oxygen species

RPM-revolutions per minute

RT- room temperature

RXR- retinoid X receptor

RIPA- Radioimmunoprecipitation assay

RUNX2- Runt related transcription factor

S- synthesis (S) phase

S-adipose tissue- subcutaneous adipose tissue

SCD-1-stearoyl Co-A desaturase-1

SCRG - Stimulator of chondrogenesis

SDS- sodium dodecyl sulphate

Sec - seconds

S.E.M.- standard error of mean

Ser-serine

SGLT-sodium glucose transporter

SHB-SH2 domain-containing adapter protein B

SIRT- Sirtuins

SM- Swertiamarin

SRY/SOX2-sex determining region Y)-box 2

SREBP- Sterol Regulatory Element–Binding Proteins

SRL- Sisco Research Lab

SSC- Side scatter

STZ-streptozotocin

SVF- stromal vascular fraction

TACE- TNFα converting enzyme

TAG-triacyl glycerol

Taq - Thermus aquaticus

TF- transcription factors

TGF-transforming growth factors

TG-triglycerides

Thr-Threonine

TIDM-Type I diabetes mellitus

TIIDM-Type II diabetes mellitus

TLR-toll like receptors

TNF-α - tumor necrosis factor alpha

Tris - trisaminomethane

TSG6-TNF stimulated gene 6

TZD-
thiazolidinediones

UCP-uncoupling
protein 1

USA- United States of
America

V-adipose tissue-
visceral adipose tissue

VEGF- vascular
endothelial growth
factors

VLDL- very low
density lipoprotein

WHO- World Health
Organization

WNT-Wingless type

α- alpha

β- beta

δ- Delta

γ- Gamma

µg – microgram

µM- micromolar

µl- microliter

#-passage

°C- degree celcius

%- percentage