بسم الله الرحمن الرحيم

تم رفع هذه الرسالة بواسطة / سلوي محمود عقل

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

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Biochemistry Department

Impact of gut microbiota on the epigenetic regulation of Nonalcoholic Steatohepatitis in animal model

A Thesis submitted for the degree of Doctor of Philosophy in Science in Biochemistry

by

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Approval sheet

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قَالُوا۟ سُبْحَٰنَكَ

لَا عِلْمَ لَنَآ إِلَّا مَا عَلَّمْتَنَآ ۖ

إِنَّكَ أَنتَ ٱلْعَلِيمُ ٱلْحَكِيمُ

Declaration

I declare that this thesis is my own work and has not been submitted for a degree at this or any other university.

Shaimaa Hamady Gadallah

Dedication

To my mother, my father, my brothers and my close friends for their love, encouragement, help and prayers that made studies possible and to them I owe everything.

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Shaimaa Hamady Gadallah

List of Contents

List of abbreviations

Abbr.	Description
4-AAP	4-Aminoantipyrine
AGO	Argonaute
ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AMOT	Angiomotin
AMOTL	Angiomotin ligand
AMP	Adenosine monophosphate
AMP	2-amino-2-methyl-1-propanol
AMPK	Adenosine monophosphate-activated kinase
APTR	Alu-Mediated CDKN1A/P21 Transcriptional Regulator
AST	Aspartate aminotransferase
AT	Adipose tissue
ATGL	Adipose TG lipase
cDNA	Complementary DNA
CDS	Coding site
CE	Cholesterol esterase
CFU	Colony-forming units
CK1δ/ε	Casein kinase 1 delta and epsilon
CO	Cholesterol oxidase
Ct	Threshold cycle
DAB	3,3′-Diaminobenzidine
DAG	Diacylglycerol
DAMPs	Danger-associated molecular patterns
DAMPs	Damage-associated molecular patterns
DEGs	Differentially expressed genes
DNL	De novo lipogenesis

DPD	3,5-dichloroaniline
DSBmT	N, N-bis (4-sulfo-butyl)-m-toluidine-disodium
ECM	Extracellular matrix
ER	Endoplasmic reticulum
EtOH	Ethanol
FDA	Food and Drug Administration
FFAs	Free fatty acids
FIAF	Fasting-induced adipocyte factor
FLRL6	Fatty liver related lncRNA
FOS	Fructooligosaccharide
GEO	Gene Expression Omnibus
γ–GT	γ-glutamyl transferase
GK	Glycerokinase
GO	Gene Ontology
GPO	Glycerol-3-phosphate oxidase
GWAS	Genome-Wide Association Study
H&E)	Hematoxylin eosin
HCC	Hepatocellular carcinoma
HDL-C	High-density lipoprotein-cholesterol
HFD	High-fat diet
HPCs	Hepatic progenitor cells
H-score	Histoscore
HSCs	Hepatic stellate cells
HSHF	High sucrose, high fat
HSL	Hormone-sensitive lipase
IFCC	International Federation of Clinical Chemistry
Ihh	Indian hedgehog
IL-6	Interleukin 6
IR	Insulin resistance
JCAD	Junctional protein associated with coronary artery disease
JNK	c-jun N-terminal kinase

KEGG	Kyoto Encyclopedia of Genes and Genomes
KLF6	Kruppel-like factor 6
LATS1	Large tumor suppressor 1
LATS2	Large tumor suppressor 2
LDH	Lactate dehydrogenase
LDL-C	Low-density lipoprotein-cholesterol
lncRNAs	Long noncoding RNAs
LPL	Lipoprotein lipase
LPS	Lipopolysaccharides
MALAT-1	Metastasis Associated Lung Adenocarcinoma Transcript 1
MAMPS	Metabolism associated molecular patterns
MAP4K4	Mitogen-activated protein kinase kinase kinase kinase 4
MBOAT7	Membrane-bound O-acyltransferase domain-containing 7 gene
MCD	Methionine and choline deficient
MDH	Malate dehydrogenase
Mer	Merlin
MeSH	Medical subject headings
MG	Monoglyceride
MGL	Monoglyceride lipase
miRNAs	MicroRNAs
MOB1A	MOB kinase activator 1A
MOB1B	MOB kinase activator 1B
MRE	miRNA Response Elements
MST1	Mammalian sterile20-like kinase 1
MST2	Mammalian sterile20-like kinase 2
NAFL	Nonalcoholic fatty liver
NAFLD	Nonalcoholic fatty liver disease
NASH	Nonalcoholic steatohepatitis
NCBI	National Center for Biotechnology Information
ncRNAs	Non-coding RNAs
NEAT1	Nuclear Enriched Abundant Transcript 1

NF2	Neurofibromin 2
NF-κB	Nuclear factor kappa B
OGT	O-GlcNAc transferase
PAMPs	Pathogen-associated molecular patterns
PBS	Phosphate buffered saline
PCR	Polymerase chain reaction
pNP	p-nitrophenol
PNPLA3	Patatin-like phospholipase domain-containing 3
pNPP	p-nitro-phenyl phosphate
PPARα	Peroxisome proliferator-activated receptor alpha
PPI	Protein-protein interaction
PVT1	Plasmacytoma Variant Translocation 1
qRT-PCR	Quantitative reverse transcription polymerase chain reaction
RISC	RNA-induced silencing complex
ROS	Reactive oxygen species
RQ	Relative Quantitation
SAV1	Salvador family WW domain-containing protein 1
SCFAs	Short-chain FAs
SNPs	Single nucleotide polymorphisms
SRD5A3-AS1	SRD5A3 antisense RNA 1
SREBP-1c	Sterol regulatory element-binding protein 1c
SREBPc	Mature cleaved nuclear SREBPs
SREBPs	Sterol regulatory element-binding proteins
STRING	Search Tool for the Retrieval of Interacting Genes/Proteins
TAZ	Transcriptional coactivator with PDZ-binding motif
TC	Total Cholesterol
TEAD	TEA domain transcriptional enhancer factor
TFs	Transcription factors
TG	Triglyceride
TGF-β1	Transforming growth factor-beta 1
TLRs	Toll-like receptors