Faculty of Science
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Mode of Action of Curcumin and Its Nanoparticles in Chemically Induced Liver Carcinoma in Male Albino Mice

A Thesis
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LIST OF ABBREVIATIONS

8-oxodG	8-Oxo-7,8-dihydroguanine
AFB1	Aflatoxin B1
AFP	Alpha-fetoprotein
AgNO3	Silver nitrate
ALAT	Alanine aminotransferase
Alb	Albumin
ALP	Alkaline phosphatase
AMP	2-amino-2-methyl-1-propanol
ANOVA	analysis of variance
AP-1	Activator protein-1
Apaf-1	Apoptotic protease activating factor-1
ASAT	Aspartate aminotransferase
b.w	Body weight
BAK	BCL2-Antagonist Killer
Bax	Bcl-2-associated X protein
Bcl-2	B cell lymphoma 2
Bcl-xL	B cell lymphoma-extra large (antiapoptotic protein)
BMI	Body mass index
CAT	Catalase
CCl4	Carbon tetrachloride
cDNA	Complementary Deoxyribonucleic Acid
COX-2	Cyclooxygenase-2
C_T	Cycle threshold
Cur	Curcumin
CYP 2E1	Cytochrome P450 2E1
Cyt c	Cytochrome c
DEN	Diethyl nitrosamine
DHBS	3,5-Dichloro -2-hydroxybenzene sulfonic acid
DR5	Death receptor-5
DTNB	5, 5′ dithiobis-2- nitrobenzoic acid
EDTA	Ethylene diamine tetraacetic acid
EGFR	Epidermal growth factor receptor

ELISA	Enzyme linked immunosorbent assay
ER	Endoplasmic reticulum
ERK	Extracellular receptor kinase
ERK	Extracellular signaling Regulating kinase
FADD	Fas-associated death domain
FGF	Fibroblastic growth factor
G-6-PD	Glucose-6-phosphate dehydrogenase
GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
GPx	Glutathione peroxidase
GR	Glutathione reductase
GS	Glutathione synthetase
GSH	Glutathione reduced
GSK3β	Glycogen synthase kinase 3 beta
GSSG	Glutathione disulfide
GST	Glutathione-S-transferase
H&E	Hematoxylin and eosin.
H2O2	Hydrogen peroxide
HBV	Hepatitis B virus
HCC	Hepatocellular carcinoma
HCV	Hepatitis C virus
HD	High dose
HIF-1α	Hypoxia-inducible factor-1α
HRP	Horseradish peroxidase
i.p	Intraperitoneal
IAPs	inhibitory apoptosis proteins
IKK	Inhibitory κB kinase
IL-8	Interleukin-8
iNOS	Inducible nitric oxide synthase
JNK	C-jun N-terminal kinase
KEAP	Kelch-like ECH-associated protein
LD	Low dose
LDH	Lactate dehydrogenase
LSD	Least significant difference
MAPK	Mitogen activated protein kinase

MDA	Malondialdhyde
MDH	Malate dehydrogenase
MMP	Matrix metalloproteinase.
mRNA	Messenger Ribonucleic acid
NAD^+	Nicotinamide adenine dinucleotide
NADH	Nicotinamide adenine dinucleotide (reduced form)
$NADP^+$	Nicotinamide adenine dinucleotide phosphate
NADPH	Nicotinamide adenine dinucleotide phosphate (reduced form)
NAFLD	Nonalcoholic fatty liver disease
Nano Cur	Nanoparticulate curcumin
NASH	Non-alcoholic steatohepatitis
NBT	Nitroblue tetrazolium
NEMO	NF-kappa-B essential modulator
NF-κB	Nuclear Factor kappa B
NK cells	Natural killer cells
NO	Nitric oxide
NO^-	Nitric oxide radical
NO_2^-	Nitrites
NOXA	NADPH oxidase activator.
Nrf-2	Nuclear factor (erythroid-derived 2)-like 2
$O2^-$	Superoxide radical
OCs	Oral contraceptives
OD	Optical density
OH^-	Hydroxyl radical
ONOO-	Peroxynitrite
P53	Tumor Suppressor Protein
PBS	Phosphate buffered saline
PMS	Phenazine methosulphate
pNPP	p-nitrophenylphosphate
PUMA	P53 upregulated modulator of apoptosis
PVP	polyvinyl pyrrolidine

RNS	Reactive nitrogen species
ROS	Reactive oxygen species
SEM	Standard errors of mean
SOD	Superoxide dismutase
STAT	Signal transducers and activators of transcription
Tak1	TGF-beta activated kinase 1
TBA	Thiobarbituric acid
TEM	Transmission electron microscope
TGF-β	Transforming growth factor beta
TGF-*α*	Transforming growth factor alpha
TLR4	Toll-like receptor4
TNFR1	Tumor necrosis factor receptor-1
TNF-*α*	Tumor-Necrosis-Factor-alpha
TP	Total protein
VEGF	Vascular endothelial growth factor
γ-GCS	γ-glutamyl cysteine synthetase

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