

Comparative Immunohistochemical Assessment of Cutaneous Cyclooxygenase-2 Enzyme Expression in Chronological Aging and Photoaging

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم

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List of Abbreviations

Å	: Angstrom
AA	: Arachidonic acid
AHAs	: Alpha-hydroxy acids
AK	: Actinic keratosis
AP-1	: Activator protein-1
APCs	: Antigen presenting cells
BCC	: Basal cell carcinoma
bFGF	: Basic fibroblast growth factor
BMI	: Body mass index
BSA	: Bovine serum albumin
°C	: Degree centigrade
C	: Carbon
cAMP	: Cyclic adenosine monophosphate
CNS	: Central nervous system
CO ₂	: Carbon dioxide
COX-1	: Cyclooxygenase-1
COX-2	: Cyclooxygenase-2
COX-3	: Cyclooxygenase-3
COXs	: Cyclooxygenases
CRE	: Cyclic adenosine monophosphate responsive element
DAB	: 3, 3 Diaminobenzidin tetrahydrochloride
DCR	: Dietary caloric restriction
DEJ	: Dermo-epidermal junction
DHEA	: Dehydroepiandrosterone
DNA	: Deoxyribonucleic acid
DOPA	: Dihydroxyphenylalanine
DPX	: Di-n-butylphthalate in xylene
ECM	: Extracellular matrix
EGF	: Epidermal growth factor
ER	: Estrogen receptor
Er:YAG	: Erbium-doped yttrium aluminum garnet

List of Abbreviations (Cont.)

ERK	: Extracellular signal-regulated kinase
ER- α	: Estrogen receptor alpha
ER- β	: Estrogen receptor beta
ET-1	: Endothelin-1
FDA	: Food and Drug Administration
FSH	: Follicle-stimulating hormone
GA	: Golgi apparatus
GAGs	: Glycosaminoglycans
G-CSF	: Granulocyte colony-stimulating factor
gm	: Gram
GM-CSF	: Granulocyte macrophage colony-stimulating factor
H&E	: Hematoxylin and eosin
HA	: Hyaluronic acid
HGF	: Hepatocyte growth factor
HLH-Id1	: Helix-loop-helix Identity 1
HLH-Id2	: Helix-loop-helix Identity 2
HO1	: Heme oxygenase 1
HRP	: Horseradish peroxidase
HRT	: Hormone replacement therapy
HSP27	: Heat shock protein 27
HSP70	: Heat shock protein 70
hv	: Sunlight
ICAM	: Intercellular adhesion molecule
ICAM-1	: Intercellular adhesion molecule-1
IGF-1	: Insulin growth factor-1
IHC	: Immunohistochemistry
IKK	: Inhibitor of kappa B kinase
IKK- α	: Inhibitor of kappa B kinase alpha
IKK- β	: Inhibitor of kappa B kinase beta
IKK- γ	: Inhibitor of kappa B kinase gamma
IL-1	: Interleukin-1
IL-10	: Interleukin-10

List of Abbreviations (Cont.)

IL-12	: Interleukin-12
IL-1 α	: Interleukin-1 alpha
IL-1 β	: Interleukin-1 beta
IL-3	: Interleukin-3
IL-4	: Interleukin-4
IL-6	: Interleukin-6
IL-8	: Interleukin-8
ILs	: Interleukins
INF- γ	: Interferon gamma
iNOS	: Inducible nitric oxide
IPL	: Intense pulsed light
IR	: Infrared
IRA	: Infrared A
IRB	: Infrared B
IRC	: Infrared C
I κ B	: Inhibitor of kappa B
JNK	: C-Jun N-terminal
K10	: Keratin 10
kDa	: KiloDalton
km	: Kilometer
LCs	: Langerhans' cells
LH	: Luteinizing hormone
LpB	: Lipid bodies
LPS	: Lipopolysaccharides
μ l	: Microliter
M	: Mitochondria
MAP	: Mitogen activated protein
MBD	: Membrane binding domain
MED	: Minimal erythema dosage
mJ/cm ²	: Millijoule/square centimeter
mm	: Millimeter
MMP-1	: Matrix metalloproteinase-1

List of Abbreviations (Cont.)

MMP-8	: Matrix metalloproteinase-8
MMPs	: Matrix metalloproteinases
MPO	: Myeloperoxidase
mRNA	: Messenger ribonucleic acid
MT	: Metallothionein
mtDNA	: Mitochondrial deoxyribonucleic acid
MΦ	: Macrophages
NADH	: Reduced form of nicotinamide adenine dinucleotide
NaN ₃	: Sodium azide
Nd:YAG	: Neodymium-doped yttrium aluminium garnet
NEMO	: Nuclear factor kappa-light-chain-enhancer of activated B cells essential modulator
NF-κB	: Nuclear factor kappa-light-chain-enhancer of activated B cells
nm	: Nanometer
NM	: Nuclear membrane
NO	: Nitric oxide
NO ₂	: Nitrogen dioxide
NO _x	: Nitric oxides
NSAIDs	: Non steroidal anti inflammatory drugs
O ₃	: Ozone
OVLТ	: Organum vasculosum laminae terminalis
P	: Phosphate
<i>P</i>	: Probability value
PBS	: Phosphate buffer saline
PBS	: Phosphate buffered saline
PCNA	: Proliferating cell nuclear antigen
PDGF	: Platelet-derived growth factor
PGD2	: Prostaglandin D2
PGE2	: Prostaglandin E2
PGF2α	: Prostaglandin F2 alpha
PGG2	: Prostaglandin G2

List of Abbreviations (Cont.)

PGH2	: Prostaglandin H2
PGI2	: Prostacyclin
PGJ2	: Prostaglandin J2
PGs	: Prostaglandins
PL	: Polypodium leucotomos
PMMA	: Polymethylmethacrylate
PPAR- γ	: Peroxisome proliferators-activated receptor-gamma
ppb	: Parts per billion
PUVA	: Psoralen and ultraviolet A
R	: Correlation coefficient
Ref	: Reference
RER	: Rough endoplasmic reticulum
ROS	: Reactive oxygen species
RXR	: Retinoid X receptor
SCC	: Squamous cell carcinoma
SCF	: Stem cell factor
SD	: Standard deviation
SER	: Smooth endoplasmic reticulum
SPF	: Sun protection factor
SPR2	: Sporulation regulated gene 2
SPSS	: Statistical package for the social sciences
T4N5	: Recombinant T4 endonuclease V
TGF- α	: Transforming growth factor-alpha
TGF- β	: Transforming growth factor-beta
TNF	: Tumor necrosis factor
TNF- α	: Tumor necrosis factor-alpha
TPA	: 12-O-tetradecanoylphorbol 13-acetate
TRAF-6	: Tumor necrosis factor receptor associated factor 6
TXA2	: Thromboxane A2
UPF	: Ultraviolet radiation protection factor
USA	: United States of America
UK	: United Kingdom

List of Abbreviations (Cont.)

UVA	:	Ultraviolet A
UVB	:	Ultraviolet B
UVC	:	Ultraviolet C
UVR	:	Ultraviolet radiation
VCAM	:	Vascular cell adhesion molecule
VEGF	:	Vascular endothelial growth factor
VOC	:	Volatile organic compounds
λ	:	Wavelength

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