

Role of Some Growth Factors and Oxidative Stress in the Pathogenesis of Diabetic Retinopathy

Thesis

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Arabic Summary	
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List of Abbreviations

ADP:	Adenosine-5`-diphosphate
AGEs:	Advanced glycation end-products
ALR:	Aldose reductase
Ang II:	Angiotensin –II
ATP:	Adenosine -5`-triphosphate
BMI:	Body mass index
BUN:	Blood urea nitrogen
cAMP:	Cyclic adenosine-5`- monophosphate
CE:	Cholesterol esterase
CO_x:	Cholesterol oxidase
CRVO:	Central retinal vein occlusion
CTGF:	Connective tissue growth factor
Cu-Zn-SOD:	Copper and zinc containing superoxide dismutase
DAG:	Diacylglycerol
DCCT:	Diabetes control and complications trial
DHAP:	Dihydroxy acetone phosphate
DM:	Diabetes mellitus
DME:	Diabetic macular edema
DR:	Diabetic retinopathy
ECM:	Extracellular matrix
ECSOD:	Extracellular superoxide dismutase
eNO:	Endothelium derived nitric oxide
ELISA:	Enzyme linked-immuno-sorbent assay
ERMs:	Epiretinal membranes
ETDRS:	Early treatment diabetic retinopathy study

List of Abbreviations

Fe-SOD:	Iron containing superoxide dismutase
FGF-4:	Fibroblast growth factor-4
Flk-1:	Fetal like kinase-1
Flt-1:	Fms-like tyrosine kinase-1
GAPDH:	Glyceraldehyde-3-phosphate dehydrogenase
GC:	Good glycemic control
GFAT:	Glutamine: fructose 6 phosphate amidotransferase
GK:	Glycerol kinase
GLUT-1:	Glucose transporter-1
GO:	Glucose oxidase
GPO:	Glycerylphosphate oxidase
GSH:	Reduced glutathione
GSSG:	Oxidized glutathione (glutathione disulfide)
GTP:	Guanine-5`-triphosphate
HbA_{1c}:	Glycated hemoglobin
HbA₀:	Non-glycosylated hemoglobin
HDL-C:	High density lipoprotein cholesterol
HGF:	Hepatocyte growth factor
HIF:	Hypoxia-inducible factor
HMP:	Hexosamine monophosphate
HRP:	Streptavidin-peroxidase
ICAM:	Intercellular adhesion molecule
IGF:	Insulin like growth factor
IL:	Interleukin
iNOS:	Inducible nitric oxide synthase
IRMA :	Intra-retinal microvasculature abnormalities
KGF:	Keratinocyte growth factor

List of Abbreviations

LCF:	Lipid clearing factor
LDL-C:	Low density lipoprotein cholesterol
MCP-1:	Monocyte chemotactic protein-1
MMPs:	Matrix metalloproteases
Mn-SOD:	Manganese containing superoxide dismutase
Na₂EDTA:	Disodium ethylene diamine tetra acetic acid
NADPH:	Nicotinamide dinucleotide phosphate
NBT:	Nitroblue tetrazolium
NF-κB:	Nuclear factor kappa beta
NO:	Nitric oxide
NPDR:	Non-proliferative diabetic retinopathy
O₂⁻:	Superoxide anion
OH[•]:	Hydroxyl radical
OxLDL:	Oxidized low density lipoprotein
PARP:	Poly adenosine-5'-diphosphate ribose polymerase
PC:	Poor glycemic control
PDGF:	Platelet derived growth factor
PDR:	Proliferative diabetic retinopathy
PEDF:	Pigment epithelium derived factor
PGI₂:	Prostacyclin
p-HBS:	Para-hydroxybenzene sulfonate
PI3:	Phosphatidylinositol
PIGF:	Placenta growth factor
PKC:	Protein kinase C
PLCγ:	Phospholipase C γ
PMS:	Phenazine methosulphate
POD:	Peroxidase

List of Abbreviations

PPDR:	Pre-proliferative diabetic retinopathy
PVR:	Proliferative vitreoretinopathy
RAGE:	Receptor for advanced glycation end products
RAS:	Rennin angiotensin system
ROP:	Retinopathy of prematurity
ROS:	Reactive oxygen species
RRD:	Rhegmatogenous retinal detachment
SDH:	Sorbitol dehydrogenase
S.E.M:	Standard error of mean
s- VCAM-1:	Soluble form of vascular cell adhesion molecule
SOD:	Superoxide dismutase
TC:	Total cholesterol
TG:	Triglycerides
TGF-β:	Transforming growth factor-beta
TMB:	Tetramethyl benzidine
TNF-α:	Tumor necrosis factor-alpha
UKPDS:	United Kingdom prospective diabetes study
VA:	Visual acuity
VCAM:	Vascular cell adhesion molecule
VEGF:	Vascular endothelial growth factor
VEGFR-1:	Vascular endothelial growth factor receptor-1
VEGFR-2:	Vascular endothelial growth factor receptor-2
VLDL:	Very Low Density Lipoprotein
VSMC:	Vascular smooth muscle cells
WESDR:	Wisconsin epidemiologic study of diabetic retinopathy

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