

شبكة المعلومات الجامعية







شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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EVALUATION OF METALLOPROTEINASE INHIBITORS IN THE TREATMENT OF INTRAOCULAR ANGIOGENESIS AND PROLIFERATION

Thesis

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 \mathcal{B}_{y}

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To the soul of my mother

To the souls of my daughters

To my great wife

To my family

ABBREVIATIONS

AMD or ARMD Age related macular degeneration

CAM Chorioallantoic membrane

• CDI Cartilage derived inhibitor

CNV Choroidal neovascularization

• CNVM Choroidal neovascular membrane

• CNVPT Choroidal neovascularization prevention trial

• D Diopter

• ECM Extracellular matrix

• EM Electron microscopy

• ERG Electroretinogram

• ERM Epiretinal membrane

• FA Fluorescein angiography

FGF Fibroblast growth factor

• Fig. Figure

• H & E Hematoxylin and eosin

ICG Indocyanine green

IGF Insulin growth factor

• IL Interleukin

• IOP Intraocular pressure

IPM Interphotoreceptor matrix

• IRBP Interphotoreceptor retinoid binding protein

KDa
 Kilo dalton

• LDL Low density lipoprotein

• LM Light microscopy

LTA Laser target angiography

mm Millimeter

MMPIs Matrix metalloproteinase inhibitors

MMPs
 Matrix metalloproteinases

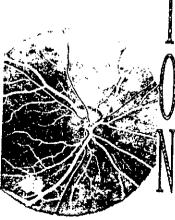
MPSG
 Macular Photocoagulation Study Group

• m-RNA	Messenger ribonucleic acid
• MT-MMP	Membrane type matrix metalloproteinase
• mw	Milliwatt
• OCT	Optical coherence tomography
• PA	Plasminogen activator
• PDEF	Platelet derived growth factor
• PDR	Proliferative diabetic retinopathy
• PDT	Photodynamic therapy
• PED	Pigment epithelium detachment
• PEDF	Pigment epithelium derived factor
• PF-4	Platelet factor 4
• POHS	Presumed ocular histoplasmosis
• PVR	Proliferative vitreoretinopathy
• RBCs	Red blood cells
• RD	Retinal detachment
• RPE	Retinal pigment epithelium
• SFD	Sorsby's fundus dystrophy
• SLO	Scanning laser ophthalmoscope
• SRF	Subretinal fluid
• SRNM	Subretinal neovascular membrane
• TAAC	Triamcinolone acetonide acetate
• TGF	Transforming growth factor
 TIMPs 	Tissue inhibitors of matrix metalloproteinases
 TNF 	Tumor necrosis factor
• TSP	Thrompospondin
• μ	Micron
• μl	Micro liter
 VEGF 	Vascular endothelial growth factor



NTRODUCTION





ANATOMY OF THE HUMAN RETINAL PIGMENT EPITHELIUM (RPE) AND CHOROID

Anatomy of RPE cells: (Fig.,1)

General topography: The human retinal pigment epithelium cells form a single layer formed of hexagonal shaped cuboidal cells of neuroectodermal origin. The RPE cells begin at the edge of the optic nerve head and extend peripherally to the ora serrata. Anterior to the ora serrata, the RPE continues as the pigment epithelium of the pars plana. The RPE has Bruch's membrane as its basal border, with the blood supply derived from the subjacent choriocapillaries. At its apex, the RPE cells are in intimate contact with the outer segments of the photoreceptor cells. The RPE cells are tightly packed against one another with little extracellular space between neighboring cells. (2)

In cross sections, the RPE cell varies in shape, depending on its age and location within the eye. In young adults, the RPE cells tend to be tall (14 μ m) and somewhat narrow (10 μ m) at the posterior pole, whereas at the ora serrata the cells are flatter and wider (60 μ m) and have a cuboidal configuration. In the intervening equatorial zone, the RPE cells have their greatest variation in size and shape, compared with the posterior pole and ora serrata region. The total number of RPE cells per human eye can vary from 4.2 to 6.1 million. RPE cells have brown color, owing to their melanin granules. Within the macular zone, histological observations confirm the fact that the RPE cells are taller and contain more melanin than RPE cells elsewhere. This accounts, in part, for the clinical observation that the macula has a darker appearance than the retinal tissue elsewhere. Also contributing to this color difference is the yellow pigment xanthophyll glycol, located in the Henle's layer of the macula, which also acts as a filter during fluorescein angiography.⁽³⁾

Retinal pigment epithelium cell boundaries:

(a) Apical surface:

The apical surface of RPE faces the subretinal space, in which the outer segments of the photoreceptor cells (rods and cones) are located. The apical surface of RPE is