

CURRICULUM VITAE

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[학력]

- 2018.02 Massachusetts Eye and Ear Infirmary, Harvard Medical School, US, Postdoc fellowship
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[관심분야]

미토콘드리아 대사 제어에 의한 맥락막망막질환 치료

[논문]

- Kim SY, Yoon NG, Im JY, Lee JY, Kim JH, Jeon YJ, Choi YJ, Lee JH, Uemura A, Park DH, Kang BH. Targeting the mitochondrial chaperone TRAP1 alleviates vascular pathologies in ischemic retinopathy, *Advanced Science*, 2024, 11(2):1-16
- Do JR, Park SJ, Kim JY, Shin JP, Park DH. Risk Factors for Pupillary Optic Capture Following Sutureless Flanged Intraocular Lens Fixation for Intraocular Lens Dislocation. *Retina*, 2023, 43(6):964-971
- Park SJ, Hwang JM, Park YJ, Shin JP, Park DH. Comparison of Surgeon Muscular Properties between Standard Operating Microscope and Digitally Assisted Vitreoretinal Surgery Systems. *Retina*. 2022, 42(8), 1583-1591
- Sim H, Lee W, Choo S, Park EK, Baek MC, Lee IK, Park DH (co-corresponding author), Bae JS. Sulforaphane Alleviates Particulate Matter-Induced Oxidative Stress in Human Retinal Pigment Epithelial Cells *Frontiers in Medicine*. 2021, 8:1-9
- Kim JH, Kim JH, Do JY, Lee JY, Yanai R, Lee IK, Suk K, Park DH. Key Role of Microglial Matrix Metalloproteinases in Choroidal Neovascularization. *Frontiers in Cellular Neuroscience* 2021/2/26. 15: 1-10

Role of metabolic reprogramming in chorioretinal diseases

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Purpose

To assess the therapeutic effects of the small compounds on choroidal neovascularization (CNV) by its modulation of inflammation and metabolic reprogramming in the retinal pigment epithelium (RPE).

Methods

The anti-angiogenic effects of the small compounds were assessed by measuring vascular leakage and CNV lesion size in the laser-induced CNV mouse model. Inflammatory responses were evaluated by qPCR, Western blot, and ELISA in both CNV eye tissues and primary human RPE (hRPE) cells under inflammatory cytokine mixture (ICM) treatment or hypoxia. Mitochondrial respiration was assessed by measuring oxygen consumption in primary hRPE cells treated with ICM±the drug.

Results

In laser-induced CNV, the small compounds significantly decreased vascular leakage and lesion size, together with choroidal and retinal inflammatory cytokines, including *Il-1 β* , *Il-6*, *Il-8*, and *Tnf- α* . Furthermore, the small compounds decreased proinflammatory cytokine secretion in ICM-treated primary hRPE cells. Interestingly, the small compounds significantly enhanced mitochondrial respiration in the ICM-treated primary hRPE cells.

Conclusions

Our findings show that the small compounds are a viable putative therapeutic for neovascular AMD by modulating the inflammatory response and metabolic reprogramming by enhancing mitochondrial respiration in the RPE.