

Special Issue

Oxidative–Inflammatory Crosstalk in Retinal Pigment Epithelium: Models, Mechanisms, and Modulators

Message from the Guest Editor

Chronic oxidative stress and low-grade inflammation in the retinal pigment epithelium (RPE) create a vicious cycle driving diseases including age-related macular degeneration, diabetic retinopathy, uveitis, and heavy-metal toxicity. Reactive oxygen species, mitochondrial dysfunction, and impaired lipid turnover trigger inflammasome activation, metabolic shifts, and barrier disruption, while inflammation worsens oxidative imbalance, promoting angiogenesis and neuronal loss. This Special Issue welcomes research, reviews, and communications on the interplay between oxidative stress and inflammation in RPE biology. Topics include in vitro/in vivo models, multi-omics of redox–immune interactions, extracellular vesicle signaling, imaging and metabolite studies, and therapeutic strategies from small molecules to gene editing. Submissions connecting mechanisms to translational insights are highly encouraged.

Guest Editor

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Deadline for manuscript submissions

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