Special Issue

Molecular and Cellular Mechanisms of Inherited Retinal Diseases

Message from the Guest Editor

Inherited retinal diseases (IRD) are a leading cause of irreversible blindness worldwide, characterized by progressive dysfunction and degeneration of retinal neurons. With over 300 disease-associated genes identified and nearly half of cases remaining genetically unresolved. Emerging evidence increasingly points to Müller glia, the principal glial cell type of the retina, as active contributors to IRD pathogenesis rather than passive bystanders. Alterations in Müller glial development, function, and extracellular matrix remodeling have been observed at early stages of disease, often preceding overt neuronal degeneration. Disruption of these supportive and homeostatic functions may critically impair retinal neuron survival through non-cell-autonomous mechanisms. This Special Issue aims to highlight recent advances in understanding the molecular and cellular mechanisms by which Müller glia influence IRD onset and progression. We welcome original research and reviews that investigate glial-neuronal interactions, shared pathogenic pathways across genetically diverse IRD, and gene-agnostic therapeutic strategies targeting Müller glia to preserve retinal structure and function.

Guest Editor

Dr. Holly Yu Chen

Cell, Developmental and Integrative Biology (CDIB), Academic Joint Departments, University of Alabama at Birmingham, Birmingham, AL 39280, USA

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Cells
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
cells@mdpi.com

mdpi.com/journal/cells

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Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

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