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Special Issue Reprint

Molecular Research and Recent Advances in Diabetic Retinopathy

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Diabetes is the fastest-growing global health issue, with diabetic retinopathy (DR) being a common long-term microvascular complication in both type 1 and type 2 diabetes. Despite recent advancements in treatment, which have reduced diabetes-related visual impairment, DR remains the leading cause of preventable blindness in working-age adults.

This Reprint, featuring eight research articles and six reviews, presents the latest molecular research and advances in DR and diabetic macular edema (DME). Topics include genetic susceptibility and the molecular basis of DR, the interrelationship between DR, DME, and diabetic nephropathy, multimodal imaging, functional tests for early DR detection, and improvements in DR screening through artificial intelligence.

This Reprint also explores new therapeutic options for DR, including sirolimus-pretreated mesenchymal stem cells, dazotuftide, aldose reductase inhibitors, and the impact of modern antidiabetic treatments on endothelial progenitor cells, which can aid in restoring vascular function. Additionally, the potential role of natural products in DR treatment is examined. This new knowledge promises to enhance diagnosis and may form the basis for future therapeutic approaches.

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