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Innovations in Retinal Imaging and Therapeutic Strategies for Degenerative Retinal Diseases

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Degenerative retinal disorders represent one of the greatest challenges in modern ophthalmology due to their progressive nature and impact on visual function. This presentation explores advances in multimodal retinal imaging, quantitative retinal biomarkers, and precision medicine approaches that are improving early diagnosis and disease monitoring. Particular emphasis will be placed on age-related macular degeneration, geographic atrophy, and inherited retinal disorders. The presentation reviews the role of high-resolution imaging technologies, including spectral-domain OCT, adaptive optics, and fundus autofluorescence, in identifying structural retinal changes before significant vision loss occurs. Recent developments in complement inhibition, sustained drug-delivery systems, and regenerative therapies are expanding treatment options for patients with advanced retinal disease. Future directions include artificial intelligence-driven image interpretation, personalized treatment planning, and international collaborative research aimed at reducing the burden of retinal blindness.

Biography

Frank G. Holz is Chairman of the Department of Ophthalmology at the University of Bonn, Germany. His research focuses on retinal diseases, age-related macular degeneration, retinal imaging, and clinical ophthalmology. He is internationally recognized for advancing diagnostic imaging and therapeutic innovation in retinal disorders.