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Combined light therapy for intermediate age-related macular degeneration: the retinaSEES device

Age-related macular degeneration (AMD) represents one of the leading causes of irreversible visual impairment and blindness, particularly in individuals over the age of 50, with a prevalence of about 10% of the worldwide population. Currently, no effective treatments exist for early and intermediate AMD, creating a significant unmet clinical need. Light-based therapies are well established across various medical disciplines, and in ophthalmology, both photo-thermal and photochemical modalities have successfully addressed many eye disorders.

We present retinaSEES, an innovative ophthalmic device that addresses early pathological stage of AMD with synergistic photo-thermal and photo-biological stimulation (810-830 nm) through pre-programmed protocols. Key technical features include a non-contact design, real-time confocal scanning laser ophthalmoscopy (cSLO) for continuous retinal visualisation, and a modular architecture that enhances patient comfort and operator workflow. Advanced optical arrangements allow rapid, semi-automatic eye positioning and monitoring without the need for a Goldmann contact lens. Initial clinical experiences with e-AMD patients confirm a safe profile and promising efficacy performance, with encouraging signals in vision-related outcomes. retinaSEES introduces a novel treatment modality with the potential to achieve unprecedented clinical outcomes and establish new standards of care for early AMD intervention.

Keywords: Subthreshold Micropulse Laser (SMPL), Photobiomodulation (PBM), Low-Level Laser Therapy, light-based combination therapy, Intermediate AMD (iAMD)

Biography

Gabriella Fernandes Pires is Head of Compliance at Oculox Technologies, where she oversees regulatory affairs, quality assurance, and clinical strategies for the company's innovative ophthalmic solutions. She has a strong background in the biomedical field, with expertise in regulatory and quality management as well as clinical affairs, including oversight of clinical trial operations and coordination. She holds a PhD in Neuroscience from the University of Lausanne, Switzerland, where she previously conducted research on gene therapy for neurodegenerative and metabolic diseases.