

LightWave I: multicenter, randomized double-masked controlled trial of LM™ LLLT (PBM) in Early and Intermediate AMD

Purpose To investigate safety and effectiveness of LM™ LLLT (PBM) on the progression of Dry AMD
Methods Double-masked, randomized, controlled, parallel group, multicenter, prospective design

138
Eyes

Dry AMD (AREDS 2-3)
1-Yr Follow-up

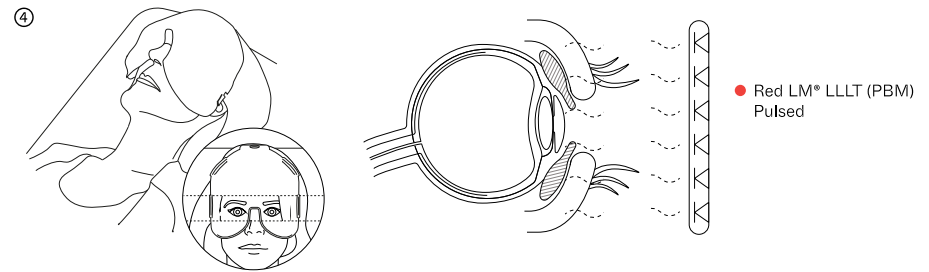
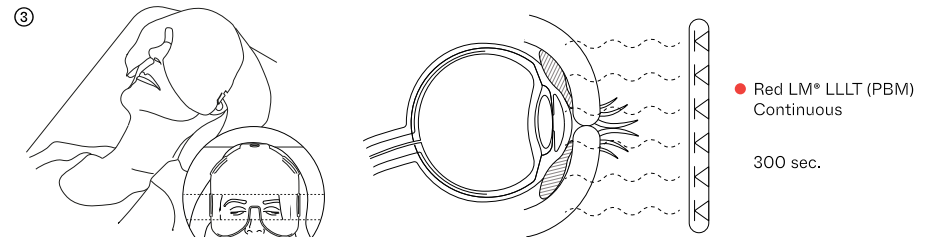
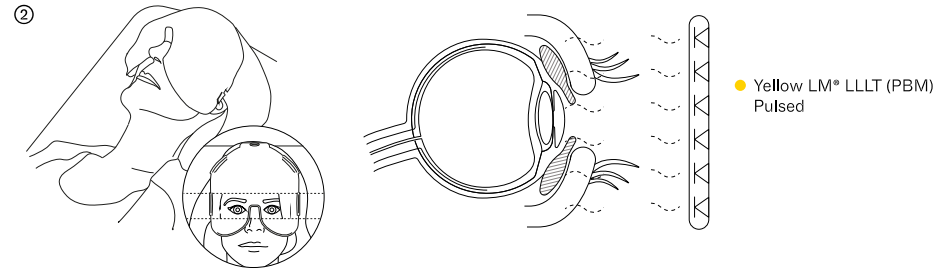
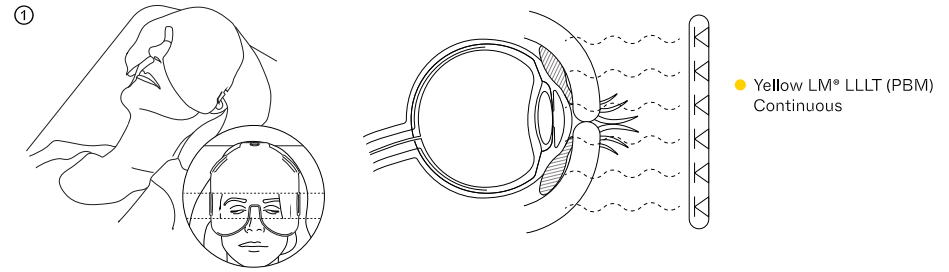
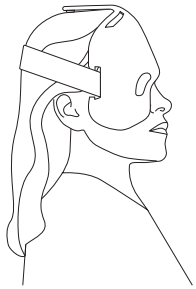
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University
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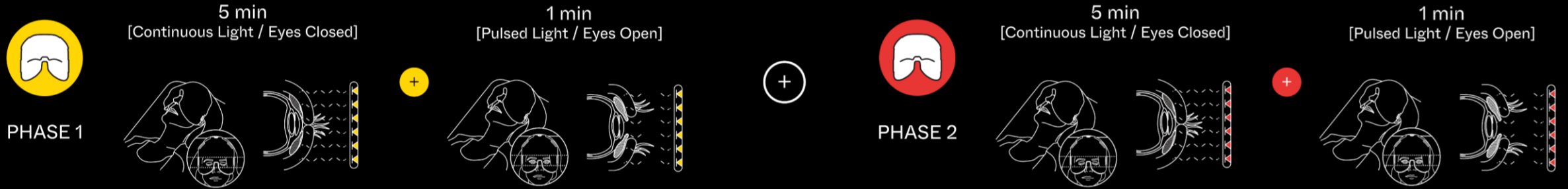
- > Age \geq 50 years
- > Dry AMD AREDS grade 2-3 (AREDS stage was ascertained based on colour fundus photography and fundus autofluorescence imaging)

- > Epilepsy
- > Neurological diseases
- > Pregnancy
- > Psychiatric comorbidities
- > Herpes infection
- > Dense cataract
- > Other retinal disorders/glaucoma

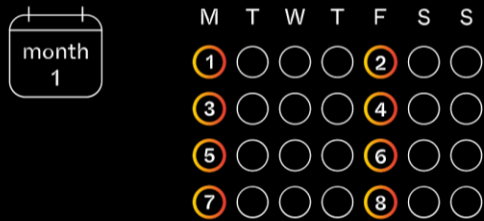
**LIGHTWAVE I
PROTOCOL / A SESSION, IN PRACTICE**



LIGHTWAVE I
 PROTOCOL / FULL PICTURE

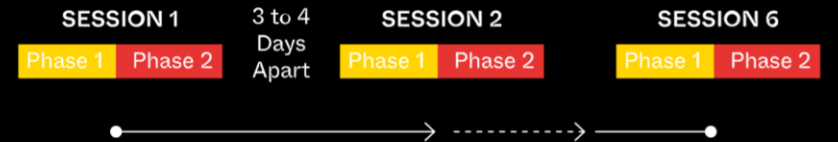
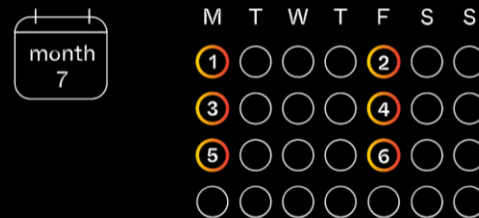


iCYCLE 1 → INITIAL



The initial treatment cycle consists of 8 sessions, each conducted 3-4 days apart.

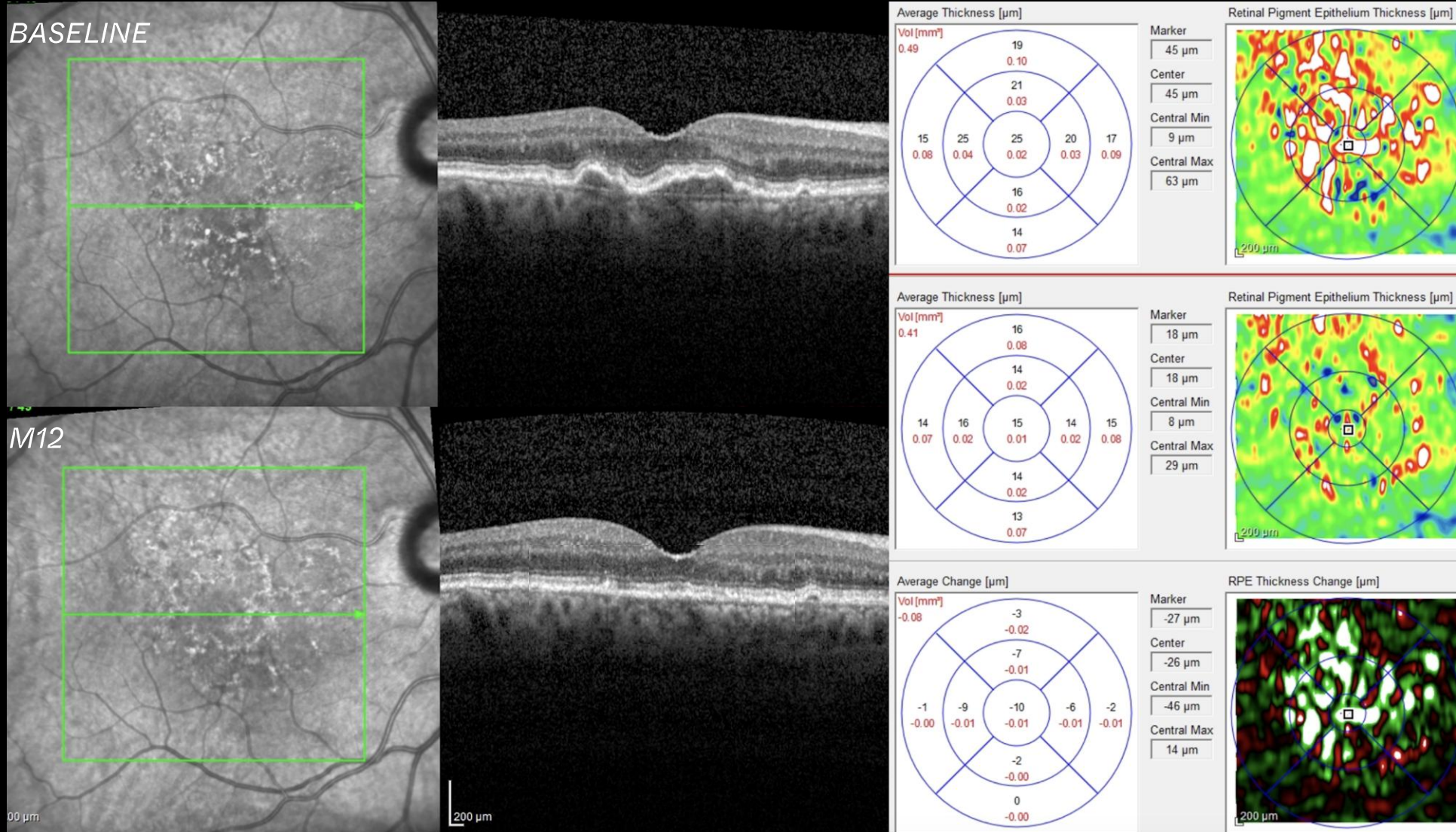
mCYCLE 1: After 6 months



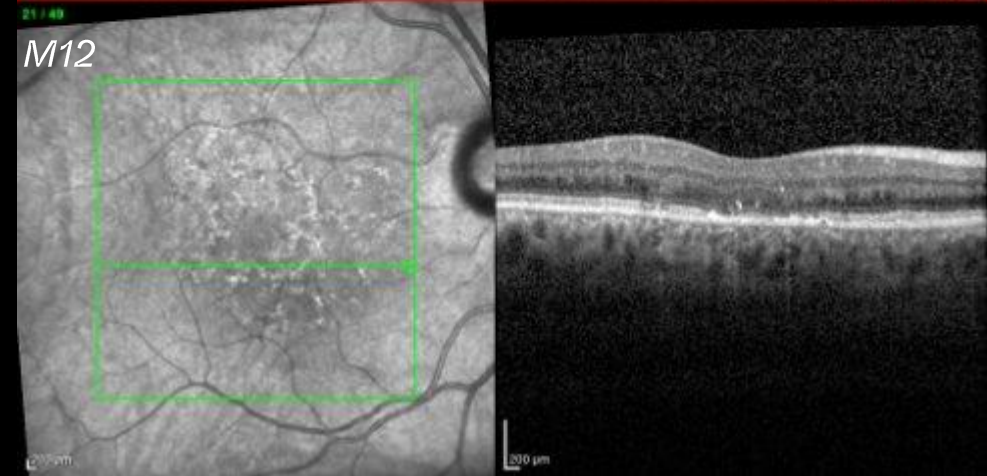
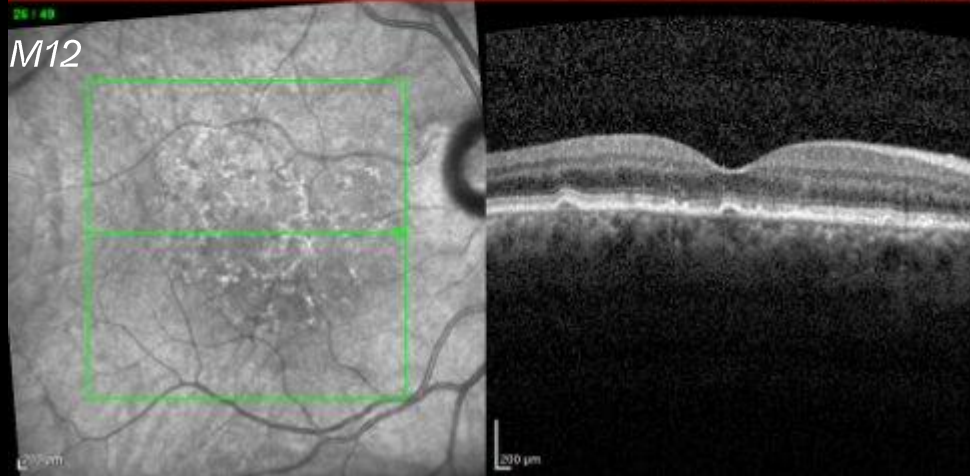
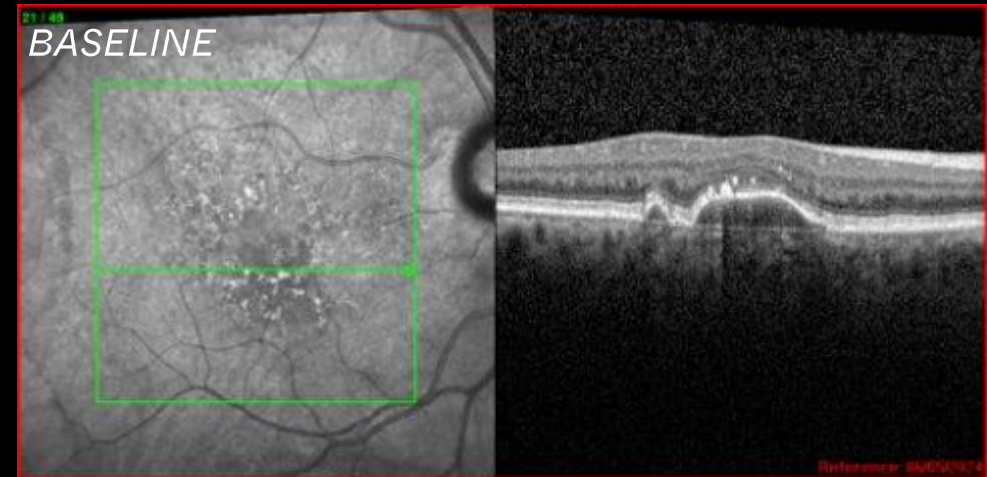
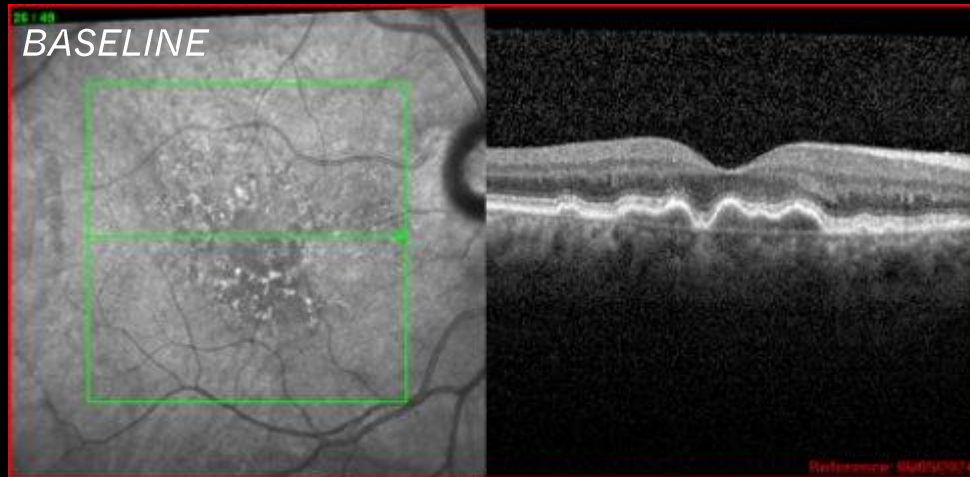
The **primary endpoint** of the study was the **change in MDV** over time in patients classified as AREDS 2 and AREDS 3, evaluated at **BL, M6** and **M12**.

The **secondary endpoint** included **changes in BCVA** assessed at the same time points.

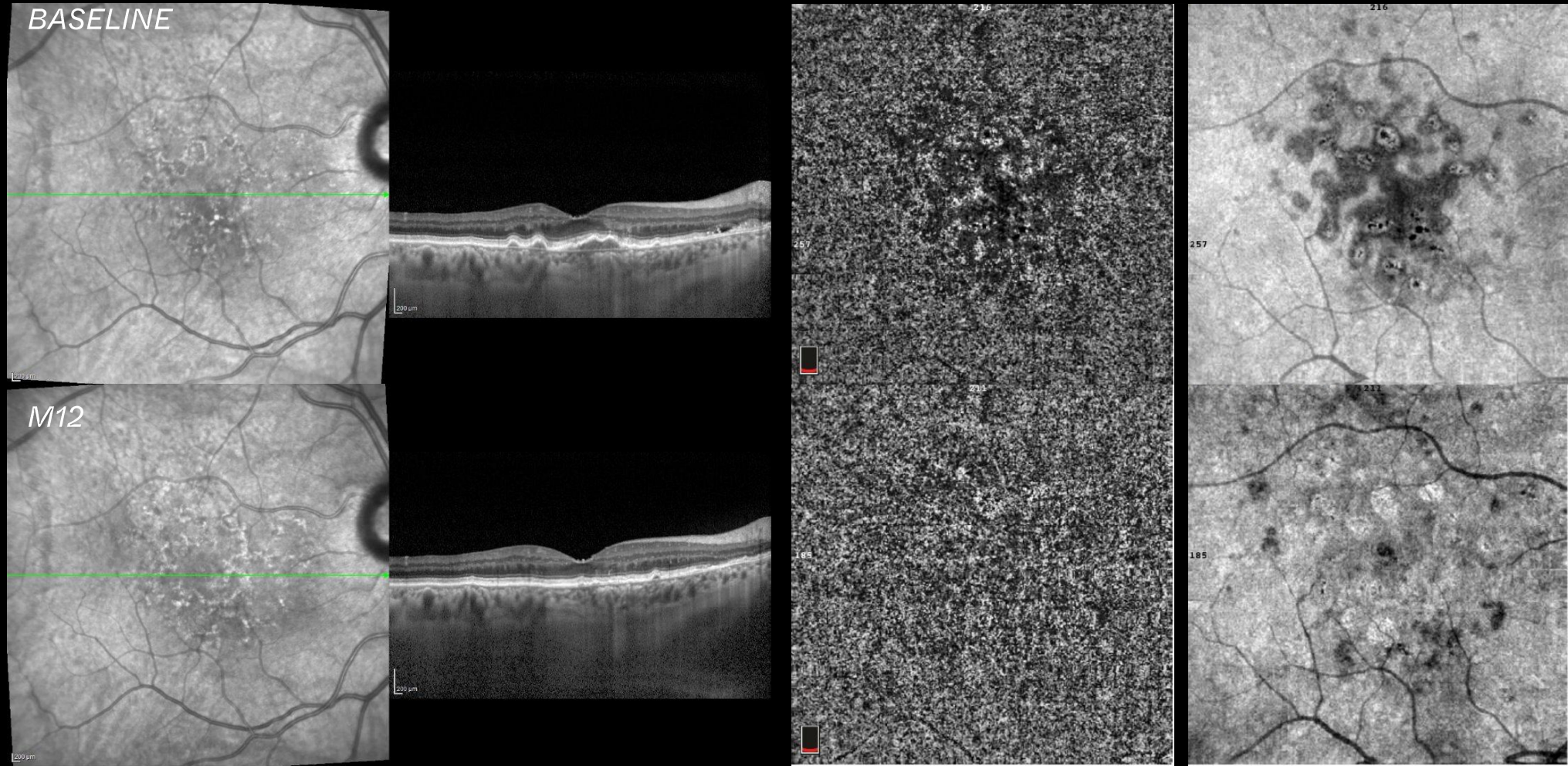
RESULTS @ 12-MOS FOLLOW-UP
> CASE 1



RESULTS @ 12-MOS FOLLOW-UP
> CASE 1 – ADDITIONAL SCANS

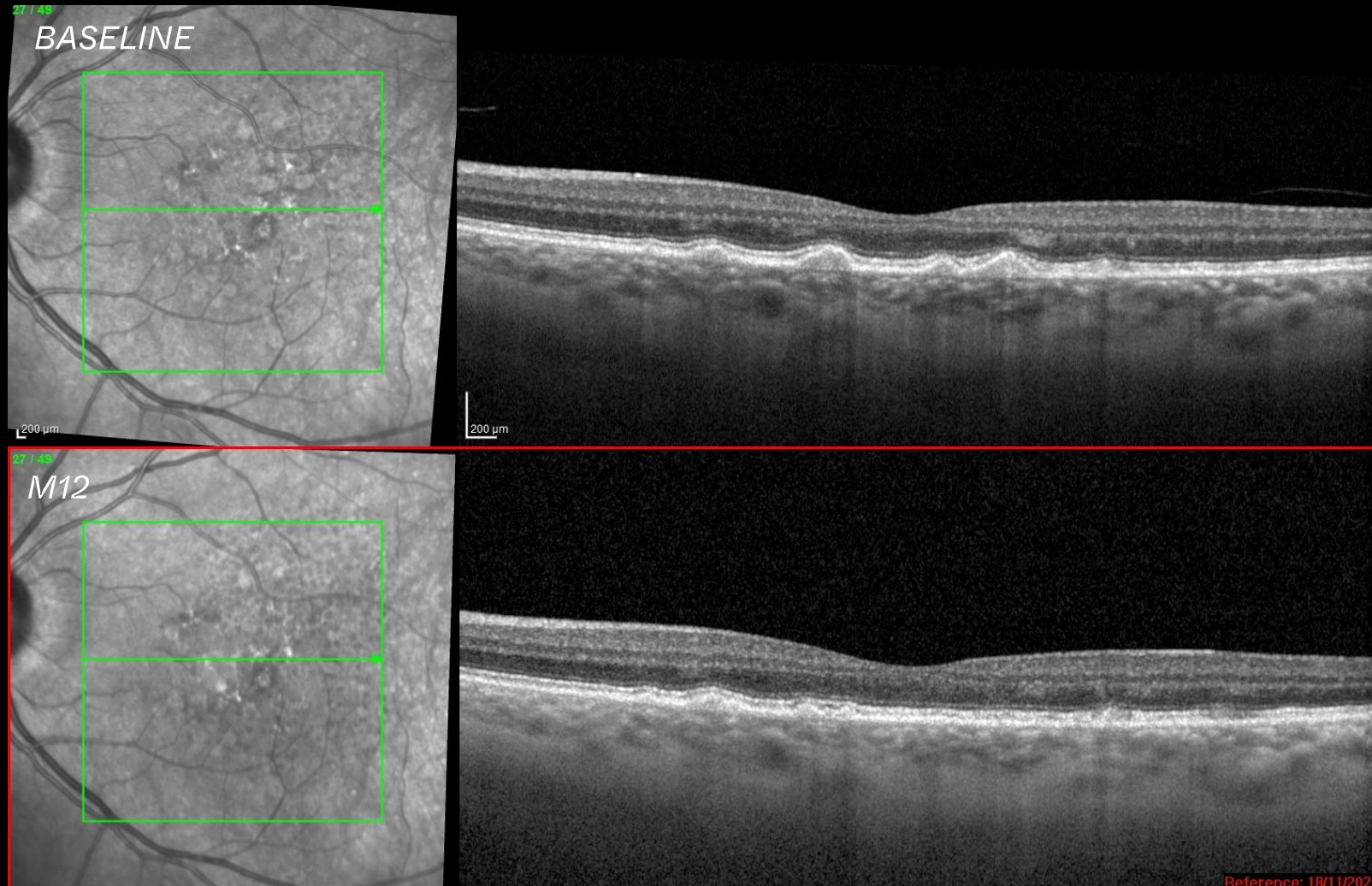


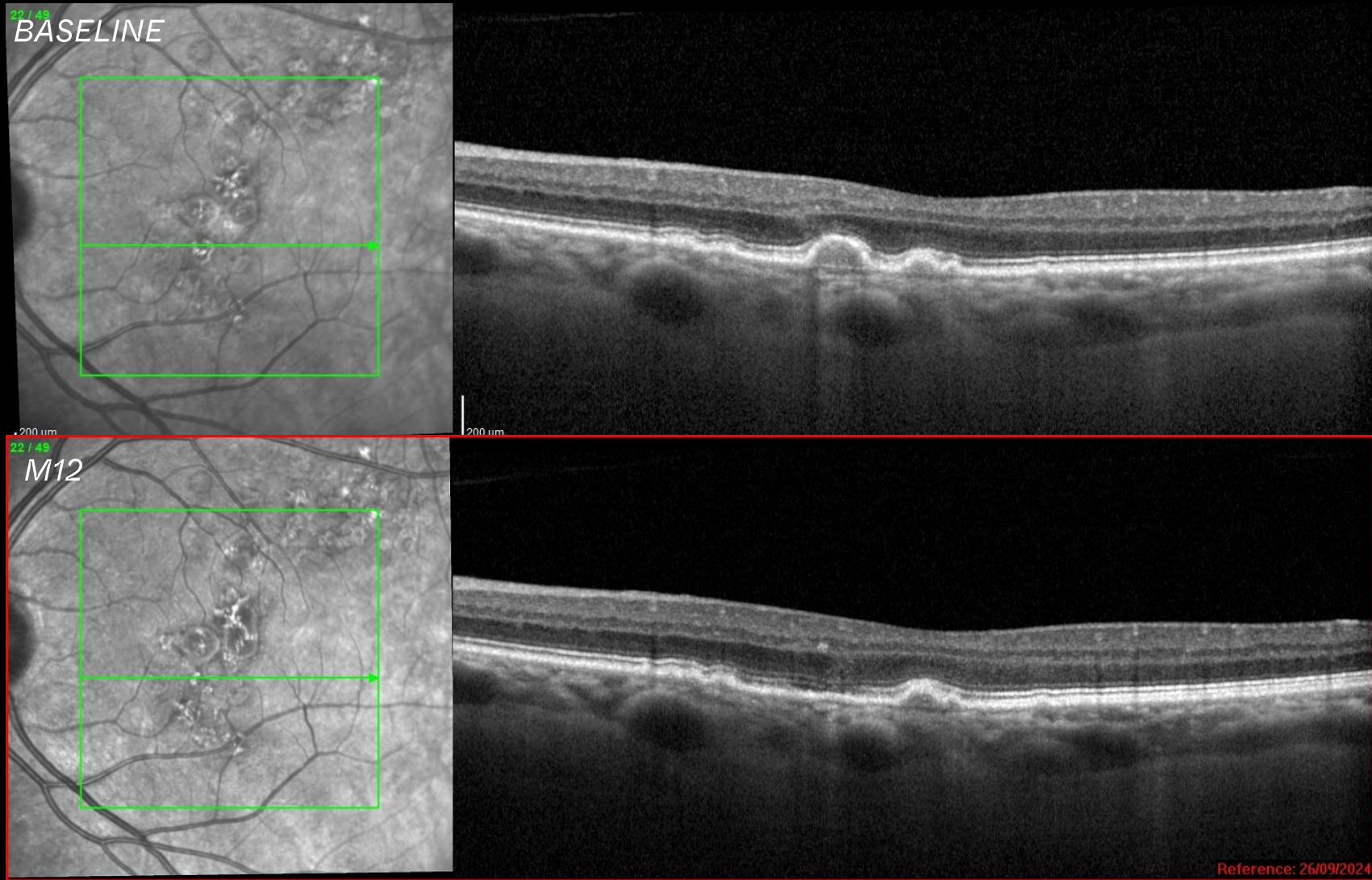
RESULTS @ 12-MOS FOLLOW-UP
> CASE 3



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HEIDELBERG
engineering





- PBM significantly reduces drusen volume and improves visual acuity in early and intermediate dAMD, with no progression to neovascular AMD observed in treated eyes over 12 months.
- The **12-month reduction** in MDV in the PBM group was consistent with the proposed mechanism of action targeting **mitochondrial dysfunction** and **drusen-associated inflammation**, thus eventually leading to a **reduction in drusen load**.¹⁻³
- These findings support PBM as a promising non-invasive therapeutic option for dAMD, warranting its integration into clinical practice and guiding future research on long-term disease modification.
- Therapeutic strategies should focus on preventing **progression to late-stage disease**.⁴⁻⁷

1. KAARNIRANTA K, UUSITALO H, BLASIAK J, ET AL. MECHANISMS OF MITOCHONDRIAL DYSFUNCTION AND THEIR IMPACT ON AGE-RELATED MACULAR DEGENERATION. PROG RETIN EYE RES. 2020 NOV;79:100858. DOI: 10.1016/J.PRETEYERES.2020.100858.
2. ALBARRACIN R, EELLS J, VALTER K. PHOTOBIO-MODULATION PROTECTS THE RETINA FROM LIGHT-INDUCED PHOTORECEPTOR DEGENERATION. INVEST OPHTHALMOL VIS SCI. 2011 JUN 1;52(6):3582-92.
3. MERRY GF, MUNK MR, DOTSON RS, WALKER MG, DEVENYI RG. PHOTOBIO-MODULATION REDUCES DRUSEN VOLUME AND IMPROVES VISUAL ACUITY AND CONTRAST SENSITIVITY IN DRY AGE-RELATED MACULAR DEGENERATION. ACTA OPHTHALMOL. 2017 JUN;95(4):E270-E277
4. GURUDAS S, MARQUES I, GIRMENS JF, ET AL. VISUAL ACUITY IN VARIOUS PHENOTYPES OF INTERMEDIATE AGE RELATED MACULAR DEGENERATION (AMD) IN A MULTICENTRE COHORT STUDY IN EUROPE- INTERCEPT-AMD REPORT 1. EYE (LOND). 2025 JUL 19.
5. LAD EM, FANG V, TESSIER M, RAUTANEN A, GAYAN J, STINNETT SS, LUHMANN UFO. LONGITUDINAL EVALUATION OF VISUAL FUNCTION IMPAIRMENTS IN EARLY AND INTERMEDIATE AGE-RELATED MACULAR DEGENERATION PATIENTS. OPHTHALMOL SCI. 2022 MAY 20;2(3):100173.
6. SADDA SR. PHOTOBIO-MODULATION FOR AGE-RELATED MACULAR DEGENERATION. JAMA OPHTHALMOL. 2025 MAR 1;143(3):195-196.
7. LAD EM, CHAKRAVARTHY U. THE ISSUE OF END POINT DISCORDANCE IN DRY AGE-RELATED MACULAR DEGENERATION: HOW MIGHT CLINICAL TRIALS DEMONSTRATE A FUNCTIONAL BENEFIT? OPHTHALMOLOGY. 2023 SEP;130(9):890-892