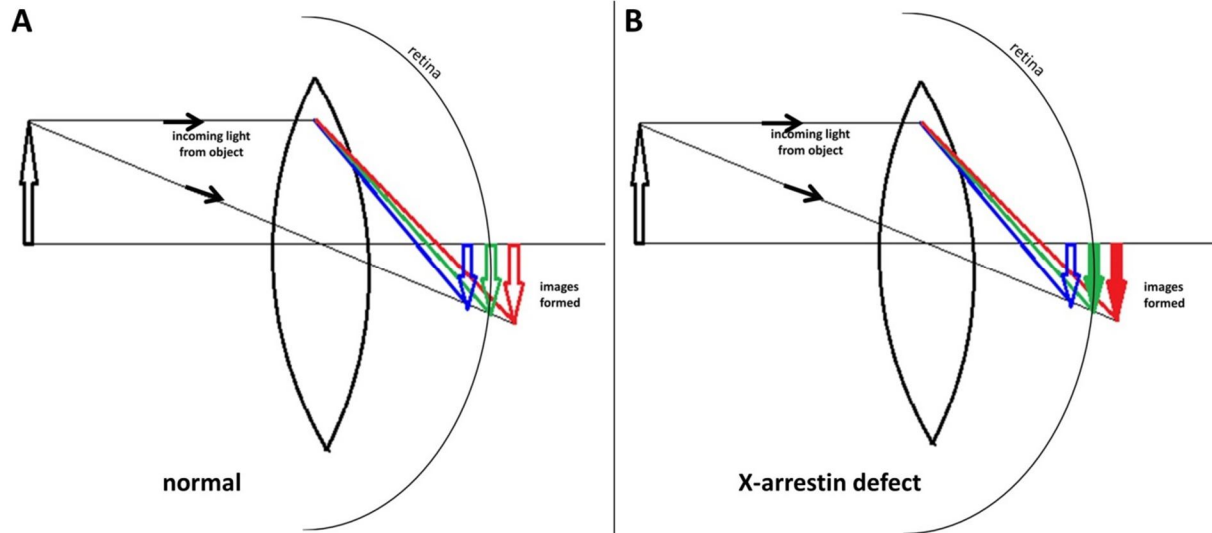


## SUPPLEMENTARY FIGURES I.



**Figure S1.** The cone hypothesis. A: Chromatic aberration results in short wavelengths forming an image anterior, long wavelengths forming an image posterior to the plane of the retina. B: In case of X-arrestin defect, LM cones are more active due to the lack of LM cone desensitisation. As a result, the images formed posterior to the retina give a more intensive signal, which is equivalent to a hyperopic defocus. A constant hyperopic defocus leads to eye elongation in animal models.

### Patient III/8



**Figure S2.** FLAG fundus image of right eye of patient III/8.

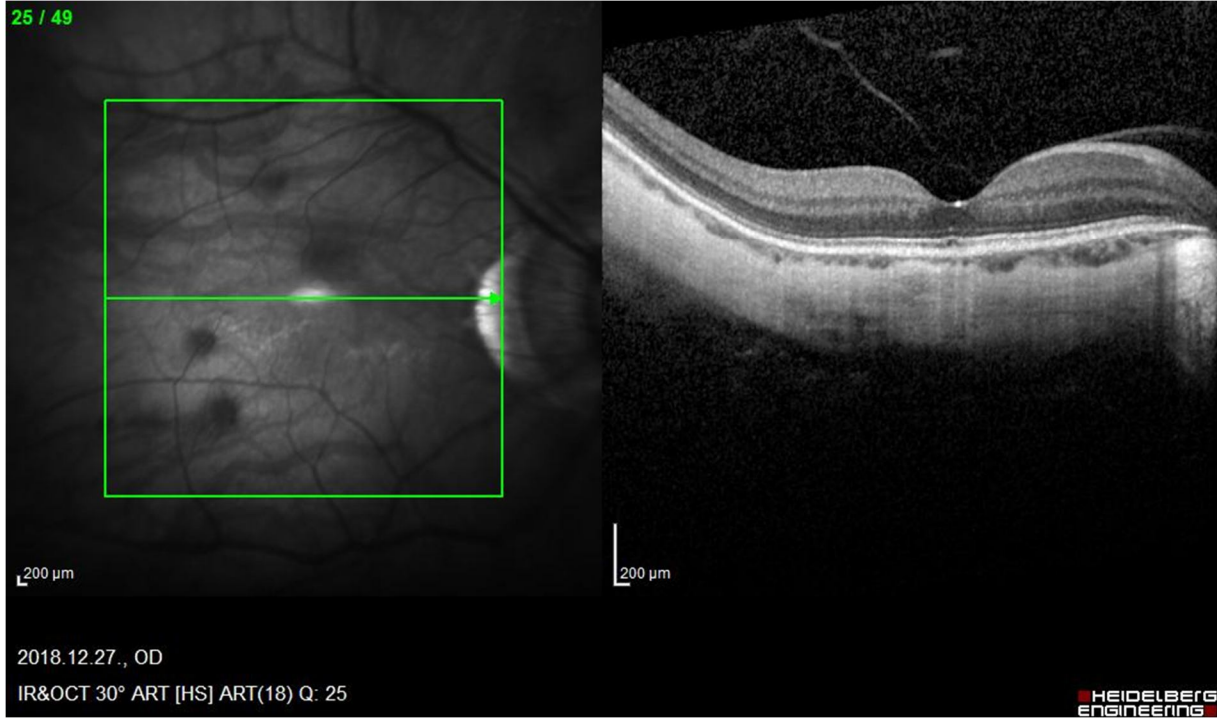


Figure S3. OCT image of macula, right eye of patient III/8.

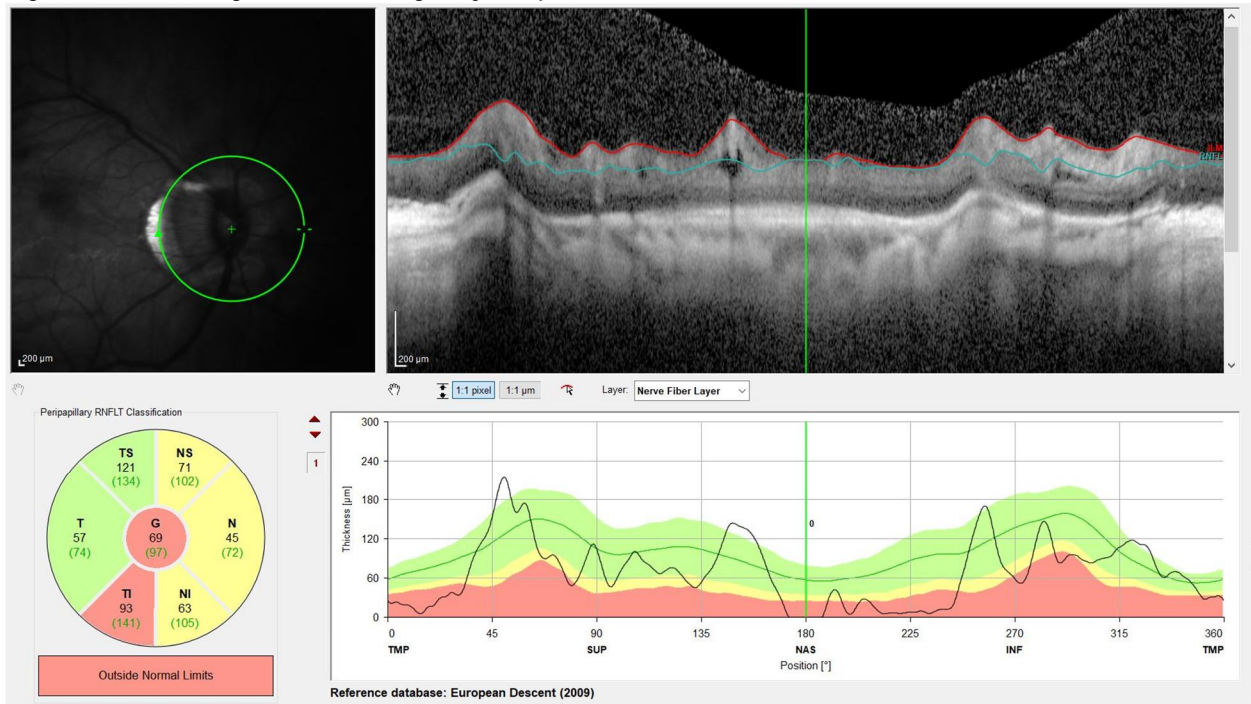


Figure S4. OCT (top) and RNFL image (bottom) of right eye of patient III/8.

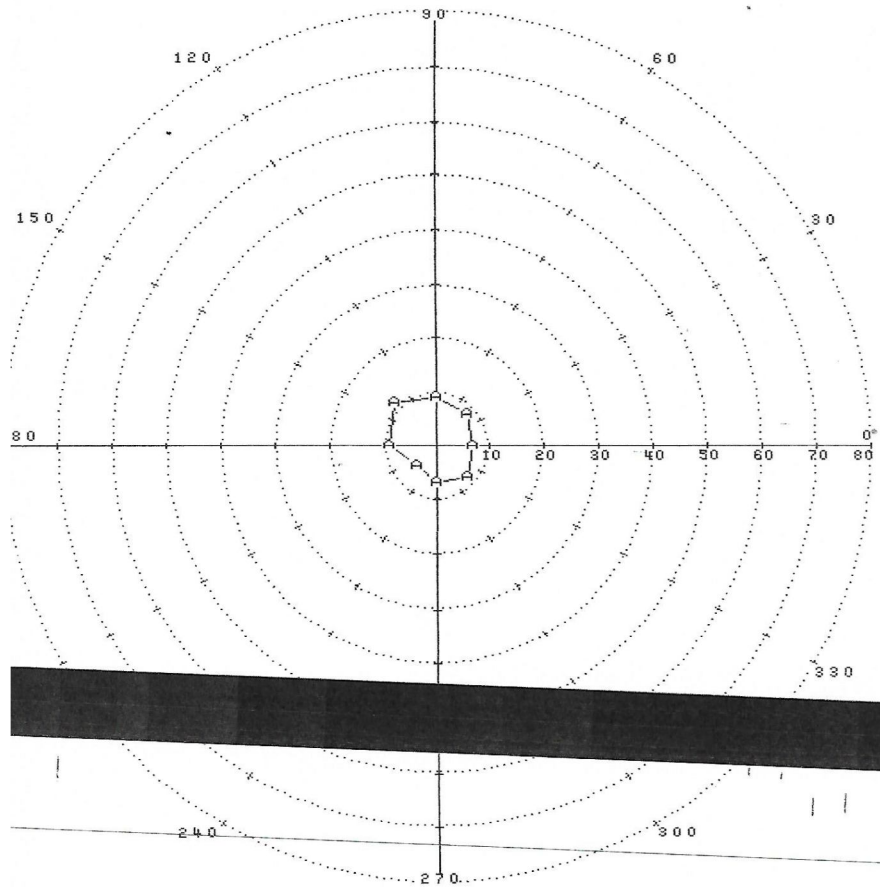


Figure S5. Visual field of the right eye of patient III/8.

Patient IV/1

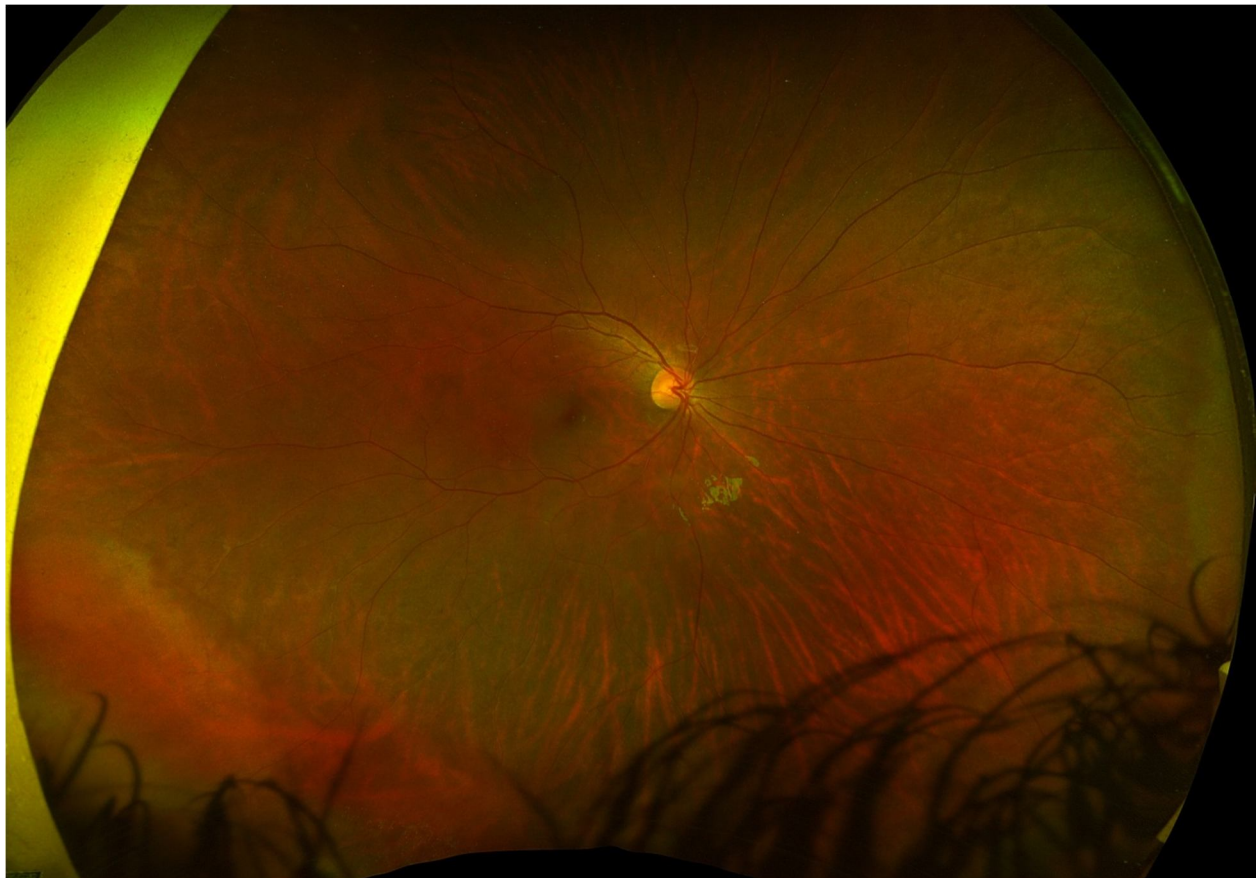


Figure S6. OPTOS fundus image of the right eye of patient IV/1.

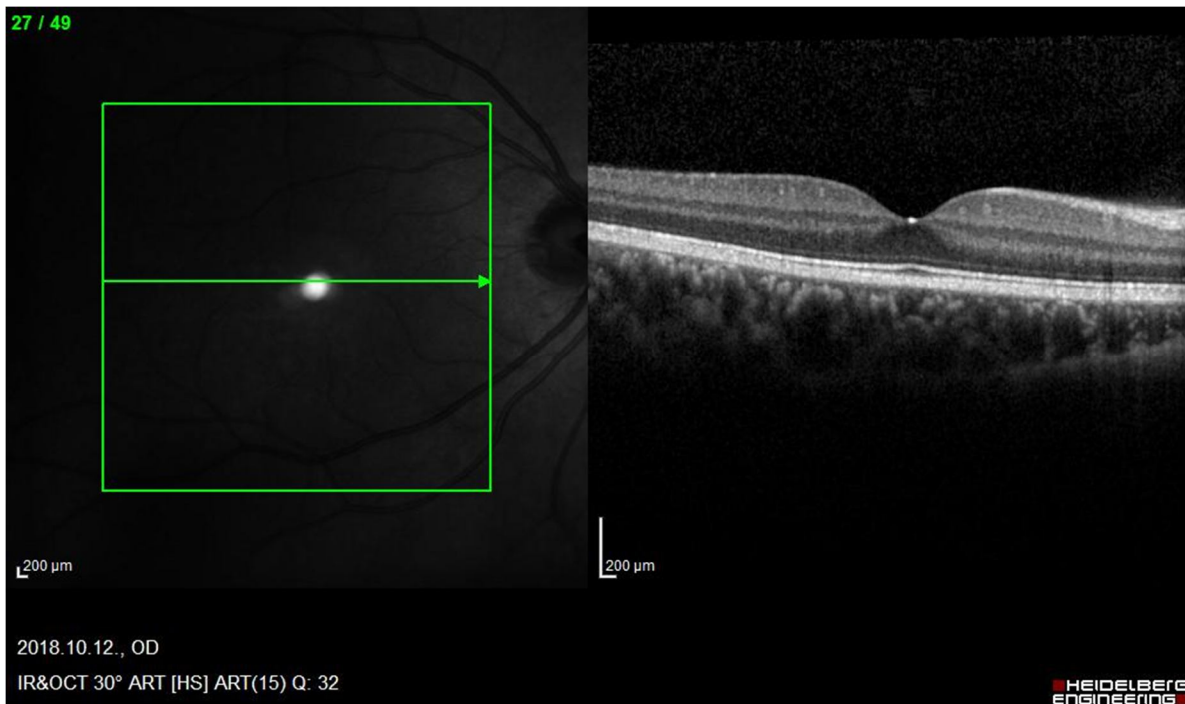


Figure S7. OCT image of macula, right eye of patient IV/1.



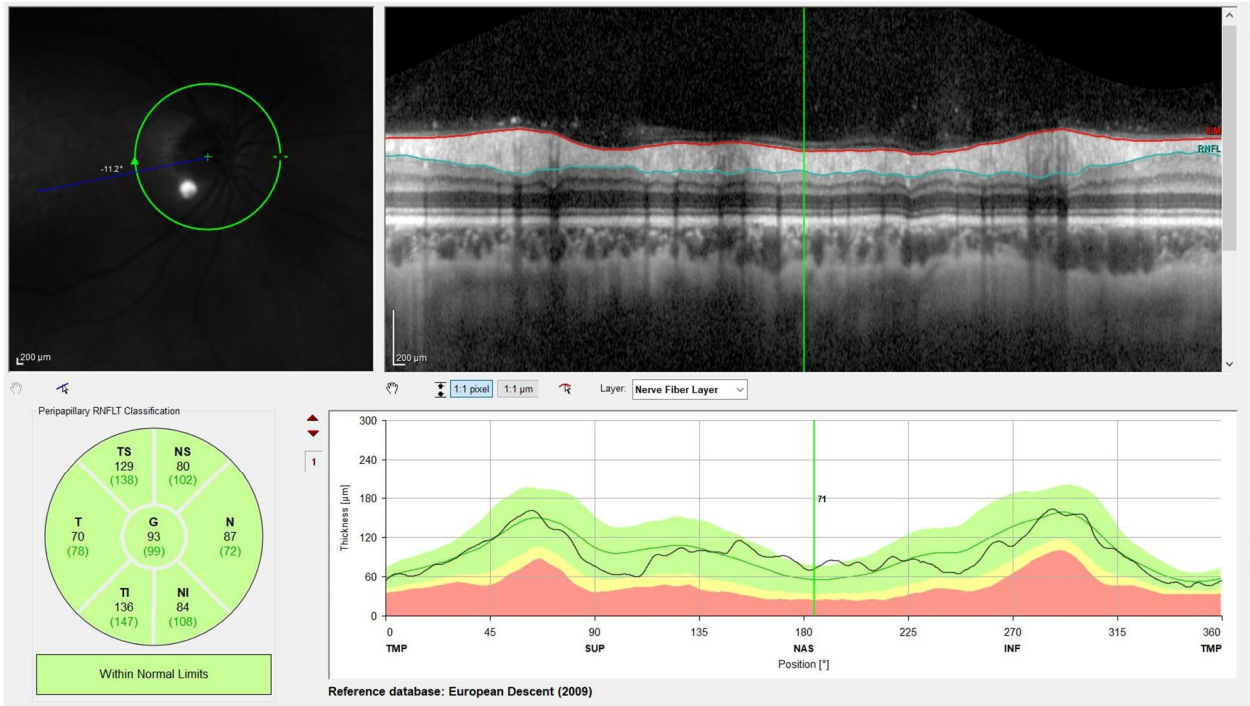


Figure S8. OCT (top) and RNFL image (bottom) of the right eye of patient IV/1.

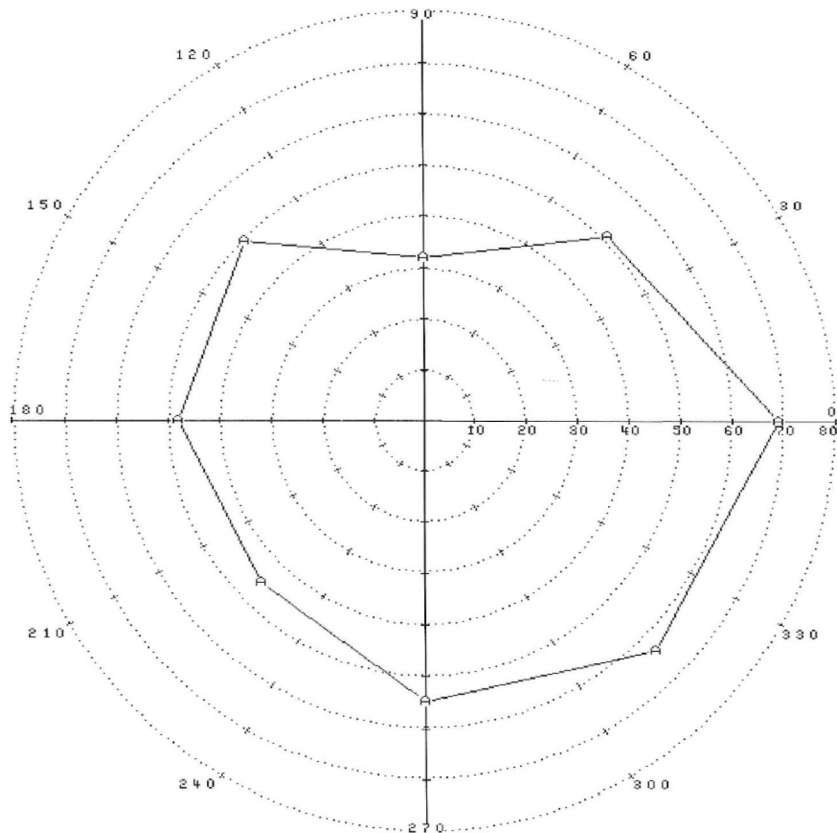


Figure S9. Visual field of the right eye of patient IV/1.

Patient IV/2

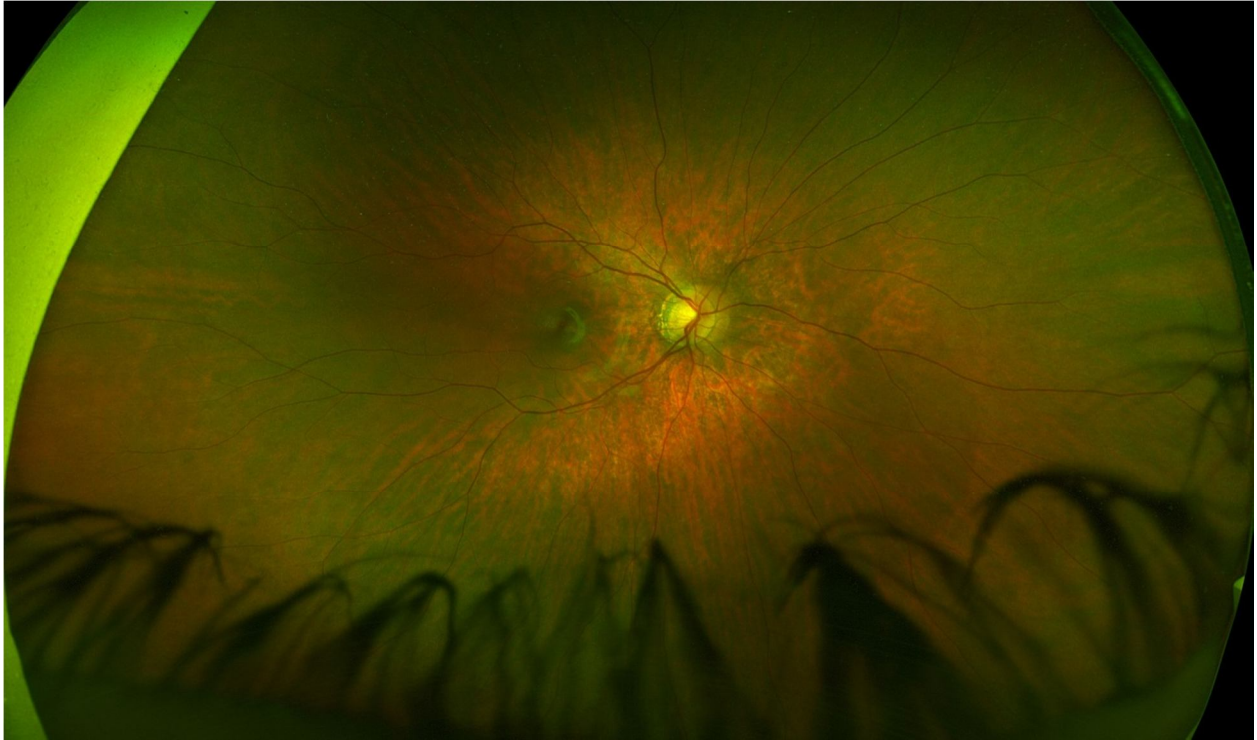


Figure S10. OPTOS fundus image of the right eye of patient IV/2.

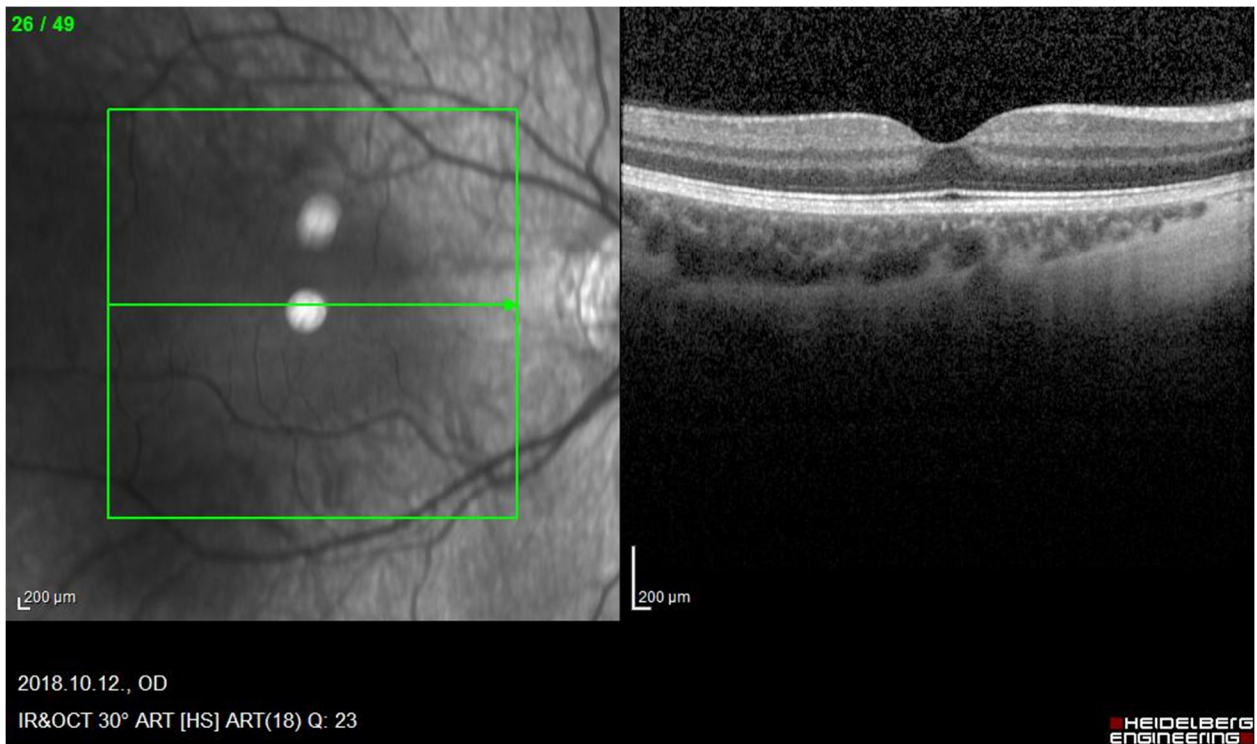


Figure S11. OCT image of macula, right eye of patient IV/2.

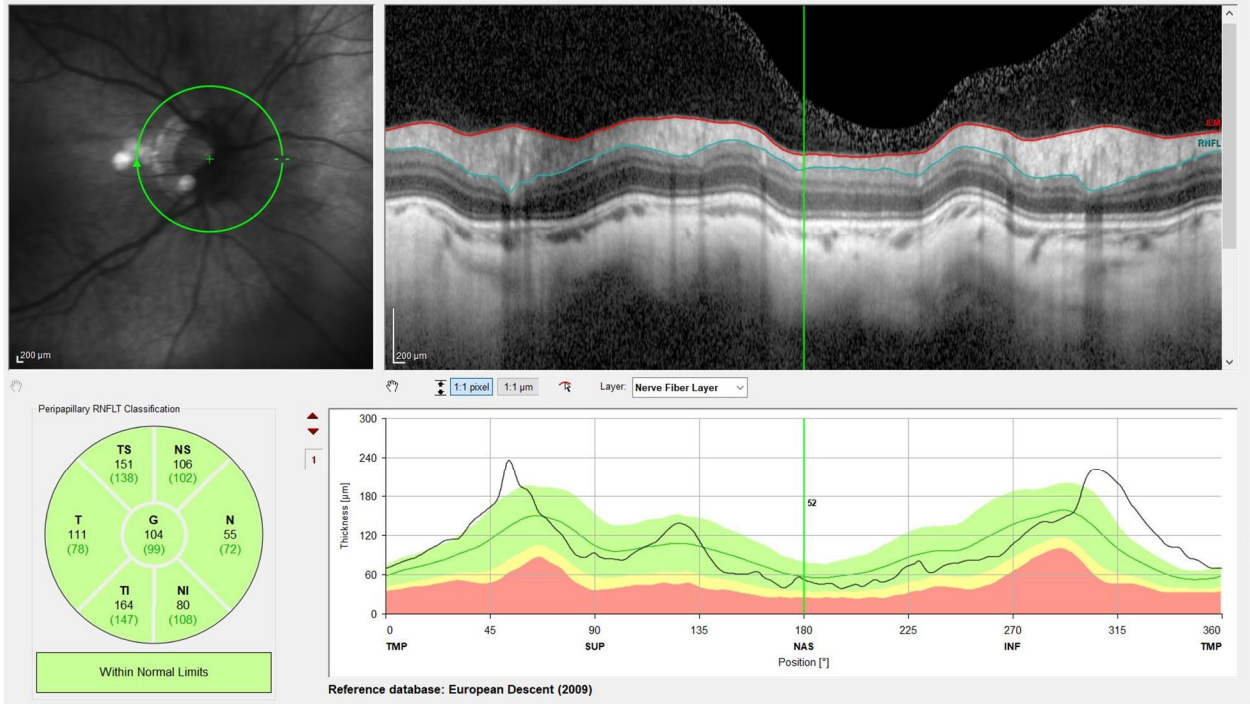


Figure S12. OCT (top) and RNFL image (bottom) of the right eye of patient IV/2.

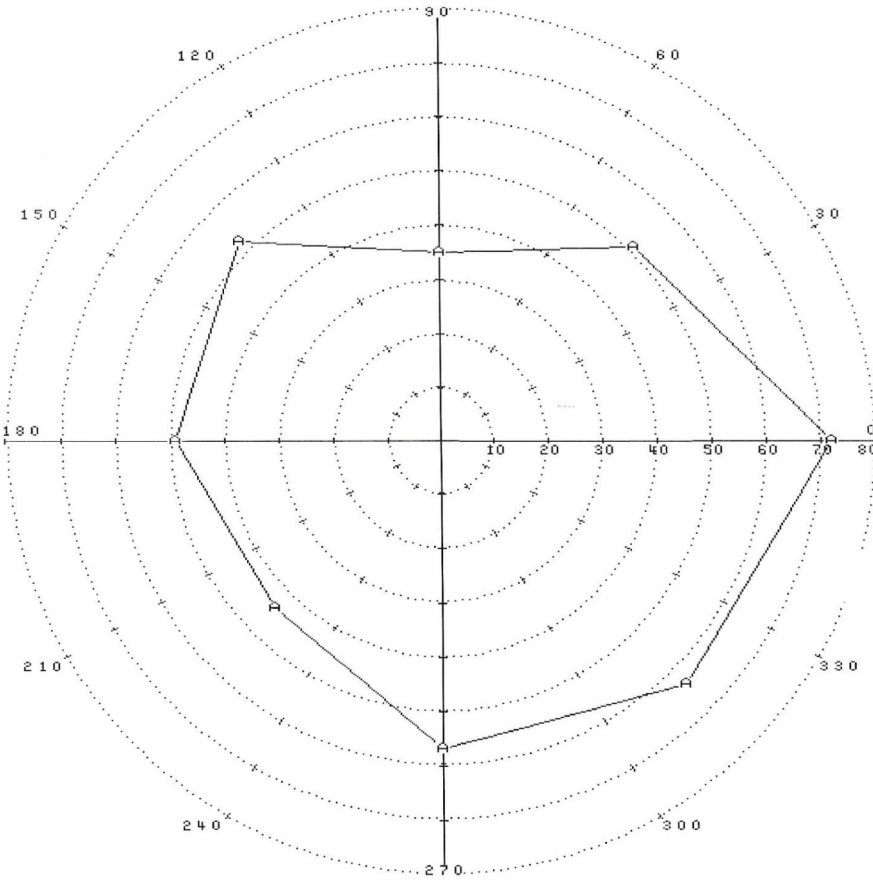


Figure S13. Visual field of the right eye of patient IV/2.

Patient IV/6

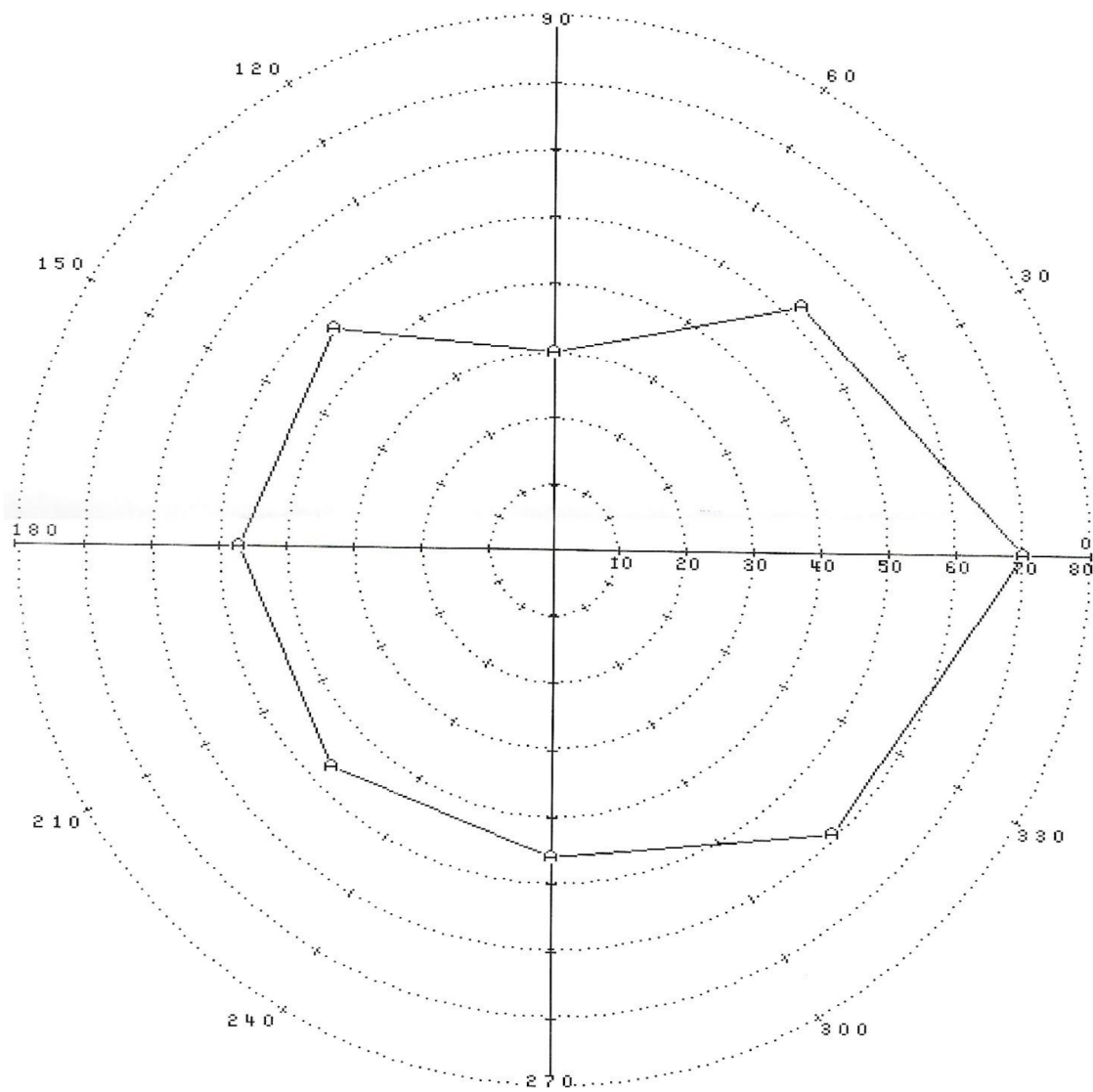


Figure S14. Visual field of the right eye of patient IV/6.



Patient IV/7

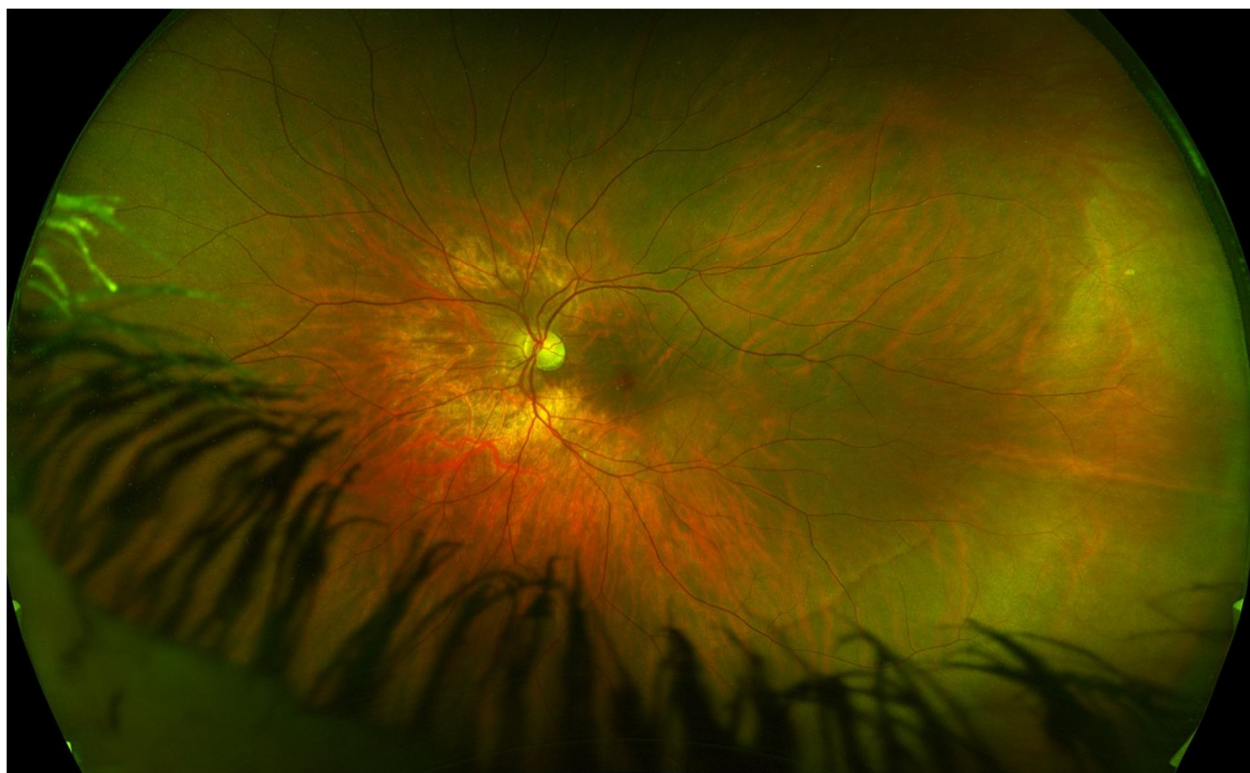


Figure S15. OPTOS fundus image of the left eye of patient IV/7.

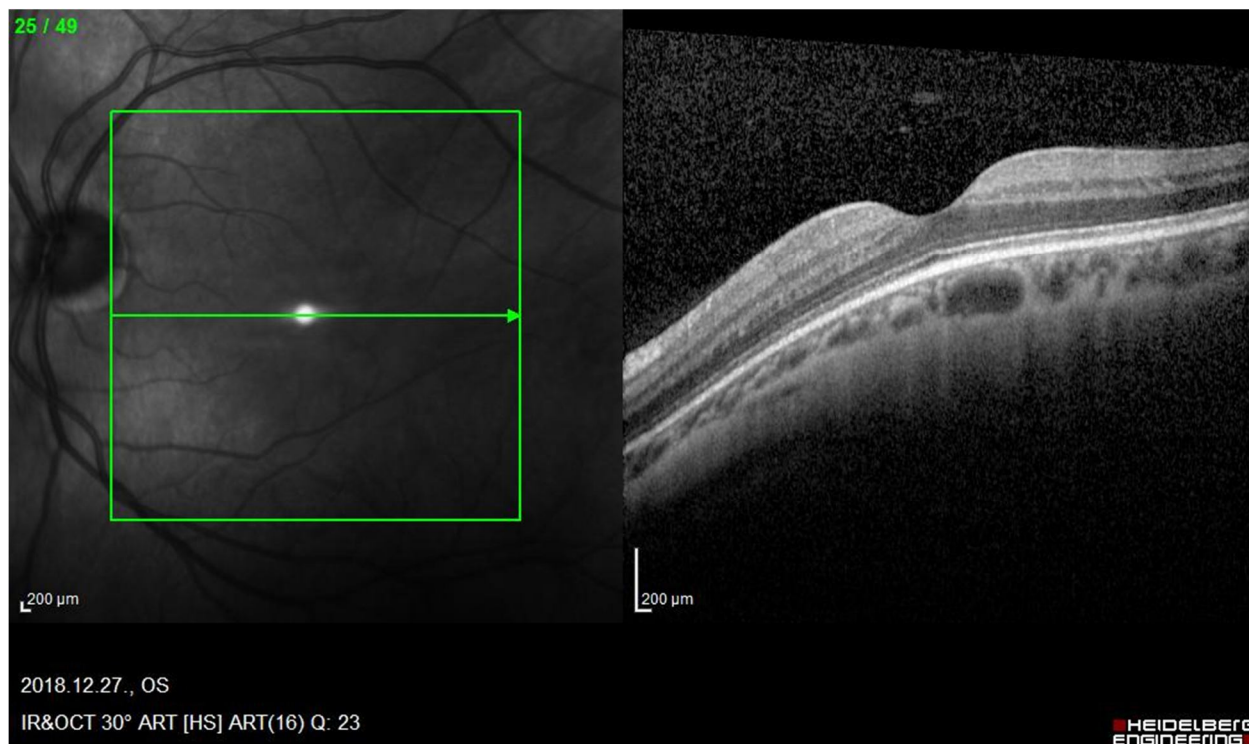


Figure S16. OCT image of macula, left eye of patient IV/7.

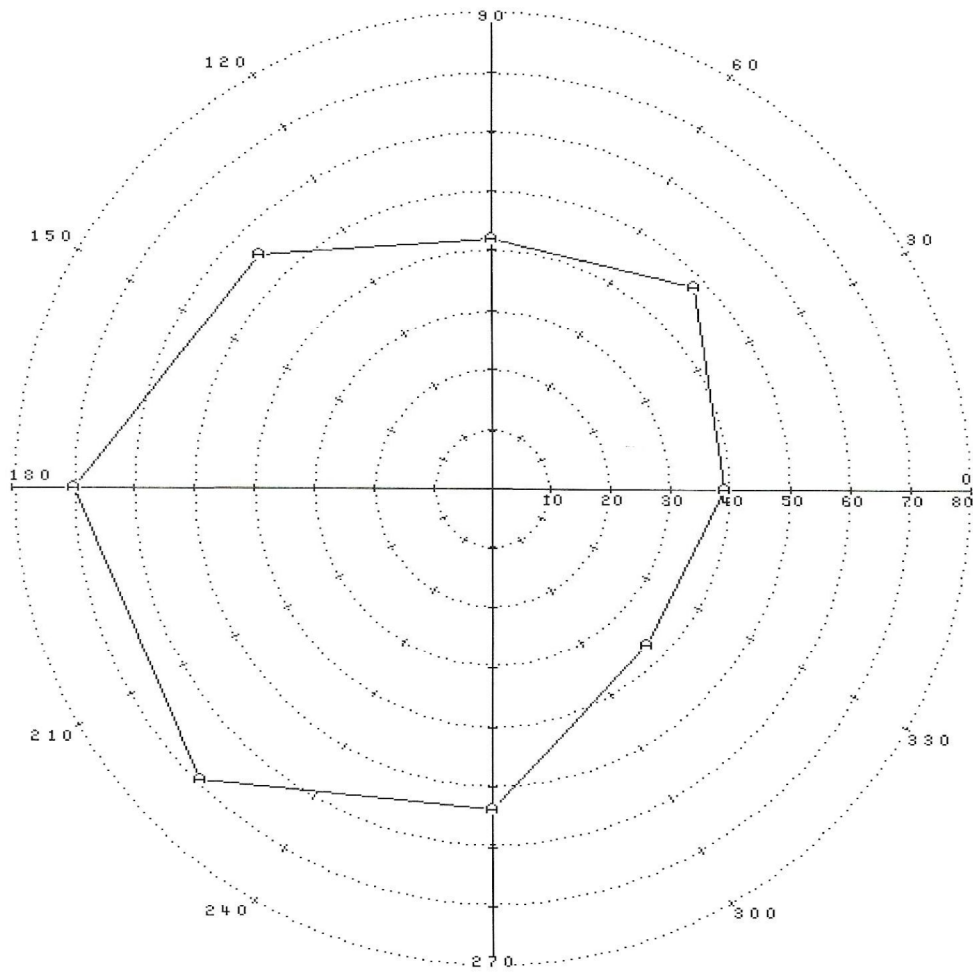


Figure S17. Visual field of the left eye of patient IV/7.

Patient IV/10



Figure S18. FLAG fundus image of the right eye of patient IV/10.

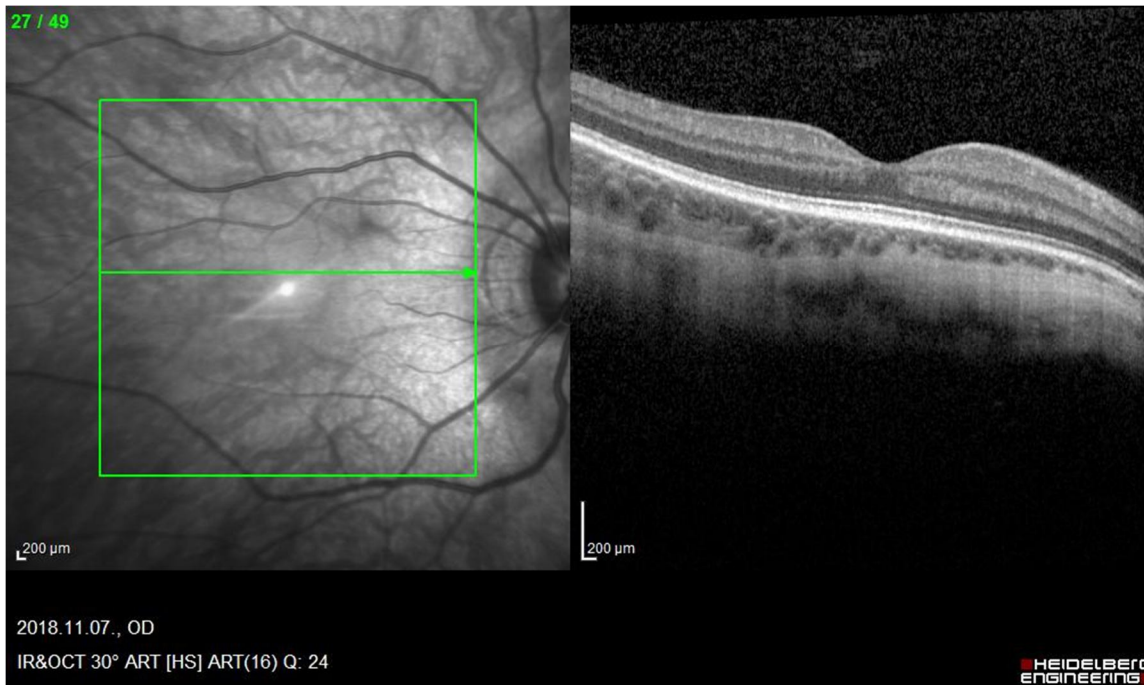


Figure S19. OCT image of macula, right eye of patient IV/10.

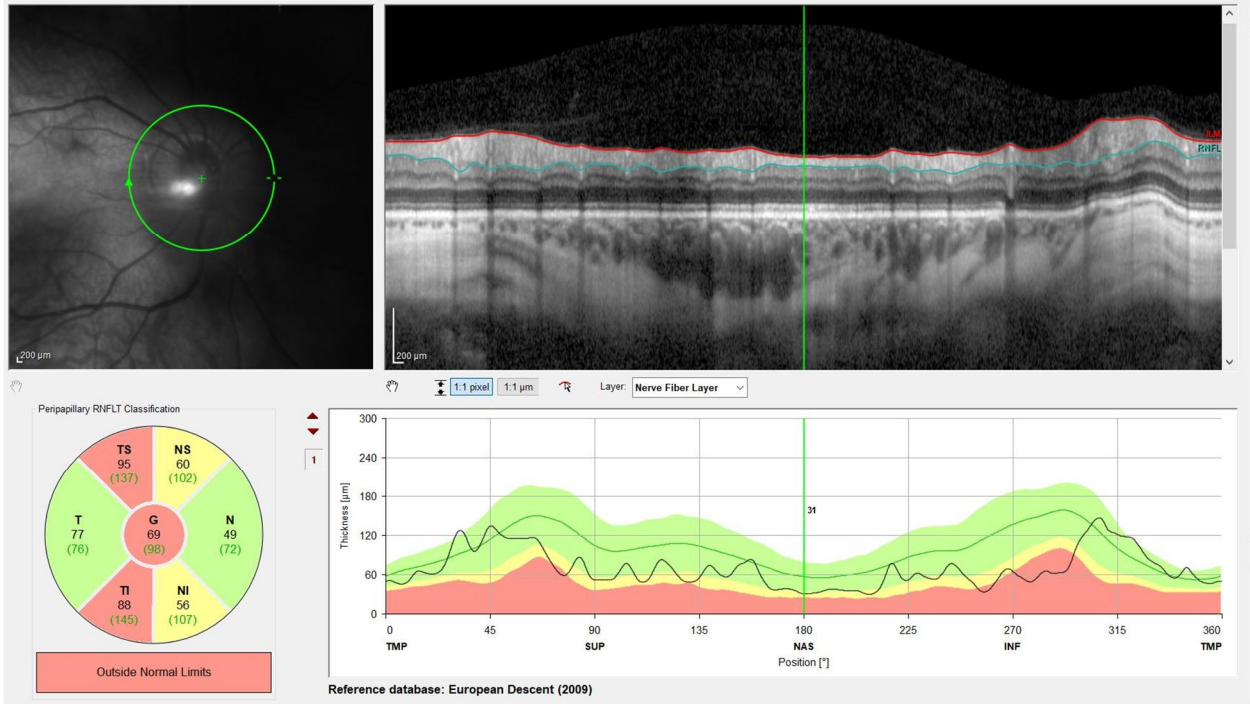


Figure S20. OCT (top) and RNFL image (bottom) of the right eye of patient IV/10.

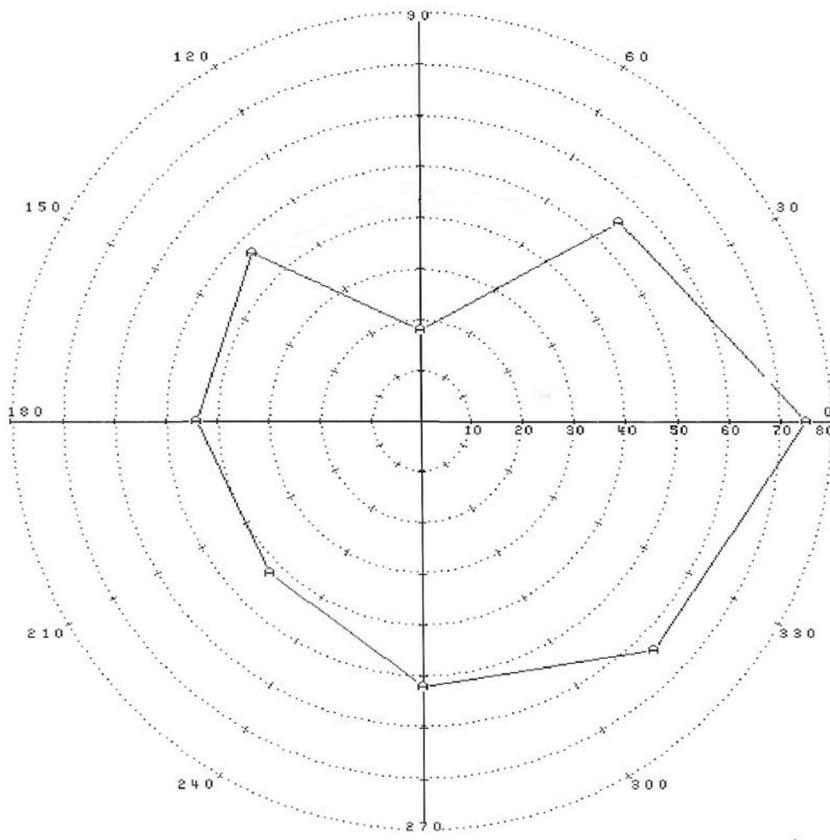


Figure S21. Visual field of the right eye of patient IV/10.