Author Response: Intraretinal Correlates of Reticular Pseudodrusen Revealed by Autofluorescence and En Face OCT

We are grateful to Sacconi and Querques for their interest in our work, and we thank them for their insightful remarks regarding the target-like features exhibited by reticular pseudodrusen (RPD) in short wavelength fundus autofluorescence (SW-AF) and infrared reflectance (IR-R) images. As described by Querques et al., targets commonly are visible as hyper-autofluorescent or isoautofluorescent spots in the center of the hypoautofluorescent foci. We have been asked to comment on this trait in relation to the changes in RPE and photoreceptor cells we reported.

We have observed, as has Querques et al. and others, that targets are most noticeable when the conical-shaped RPD lesion visible in spectral domain-optical coherence tomography (SD-OCT) images projects through the ellipsoid zone (EZ). Bearing in mind that bisretinoid lipofuscin forms due to reactions of vitamin A aldehyde in photoreceptor cells, the abnormal autofluorescence of the target lesion could emanate from the cluster of degenerating photoreceptor cells represented by the pyramidal-shaped hyperreflective lesions in the SD-OCT scans. Observations of anomalous hyperautofluorescence under conditions of photoreceptor cell degeneration have led us to propose previously that bisretinoid lipofuscin can undergo increased formation as a secondary feature of photoreceptor cell impairment. Examples of this mechanism include the SW-AF rings in retinitis pigmentosa, abrupt elevations in SW-AF observed in acute macular neuroretinopathy, and fundus flecks that are present in recessive Stargardt disease at locations where an absence of NIR-AF indicates a loss of RPE. Under experimental conditions, we also have observed elevated SW-AF in association with outer segments that form the core of photoreceptor cell rosettes in degenerating mouse retina.

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References

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