

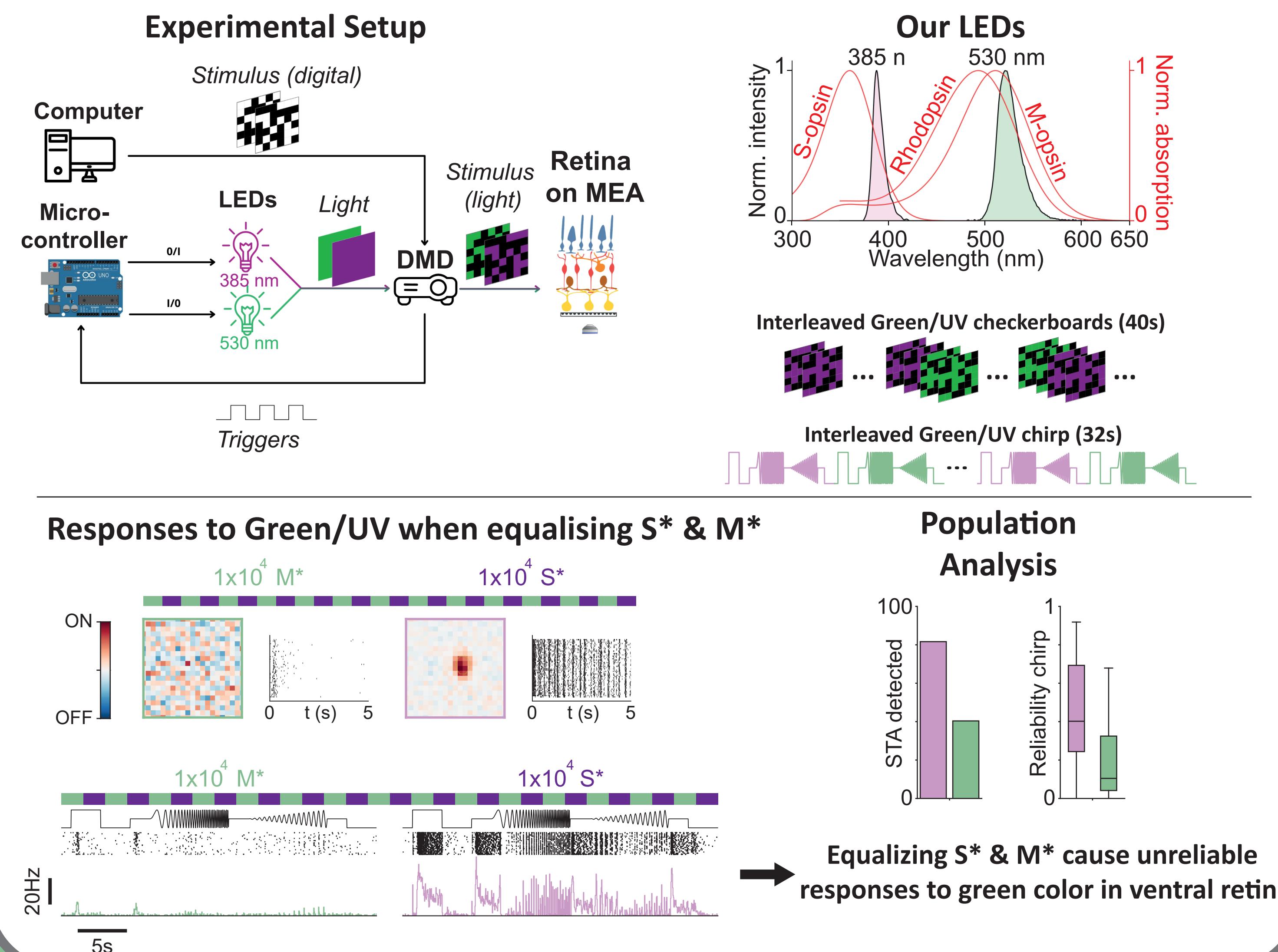
# Balanced spatiotemporal color responses are fine-tuned to natural light spectrum in mice ventral retina

Quetu Tom<sup>1,\*</sup>, Castellani F.<sup>1,2,\*</sup>, Louboutin A.<sup>1,\*</sup>,  
Barroux R.<sup>1</sup>, Ferrari U.<sup>1</sup>, Goldin M.A.<sup>1</sup>

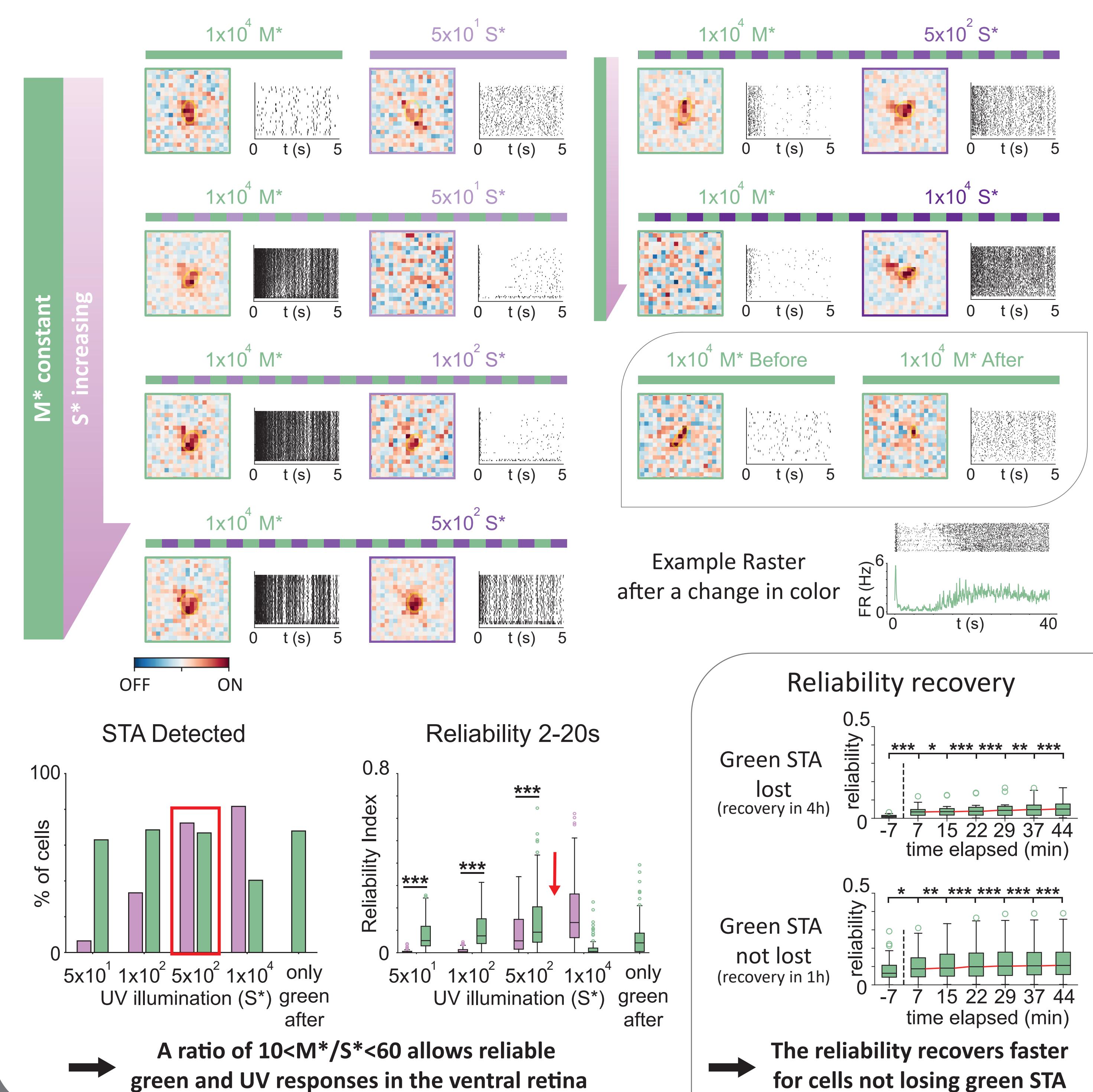
1. Sorbonne Université, CNRS, Inserm, Institut de la Vision, F-75012 Paris, France  
2. Politecnico di Milano, Department of Electronics, Information, and Bioengineering, Milan, Italy



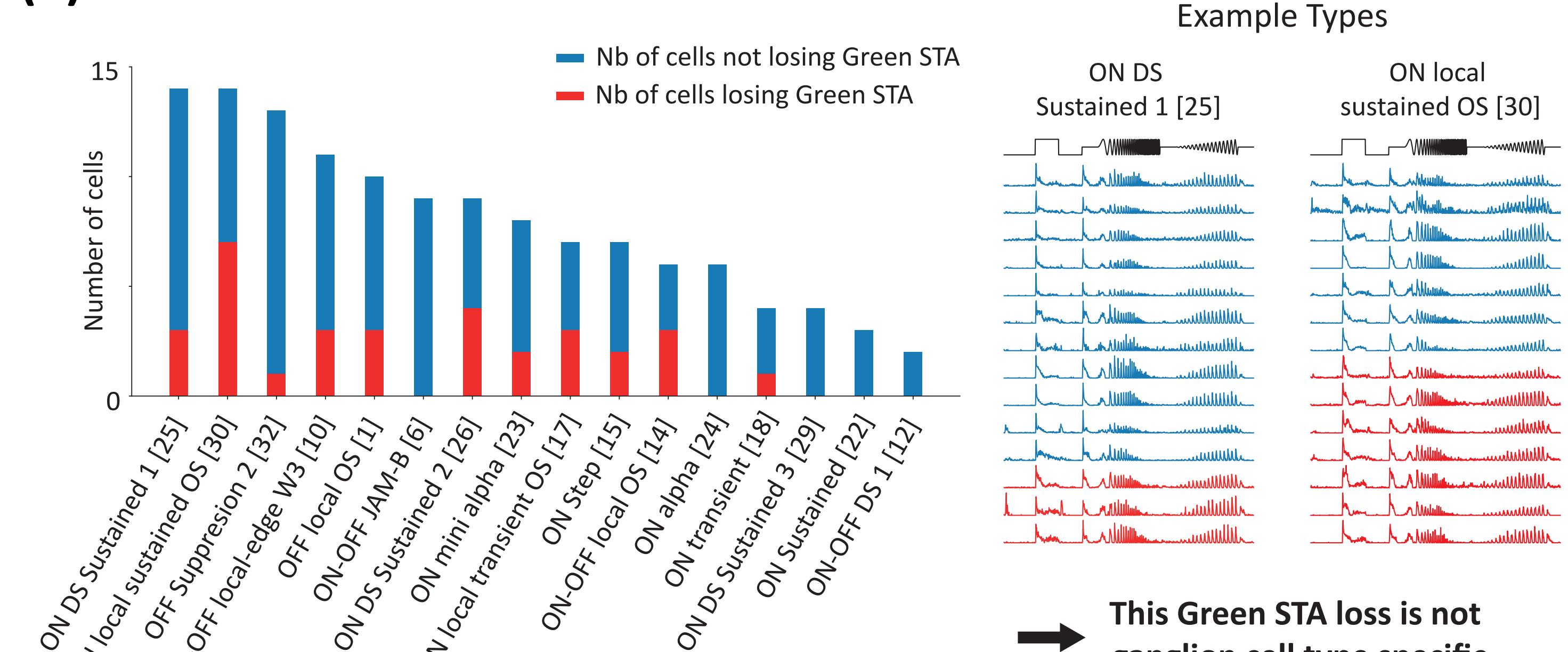
## (1) SIMULTANEOUS COLOR RECORDINGS IN THE VENTRAL RETINA



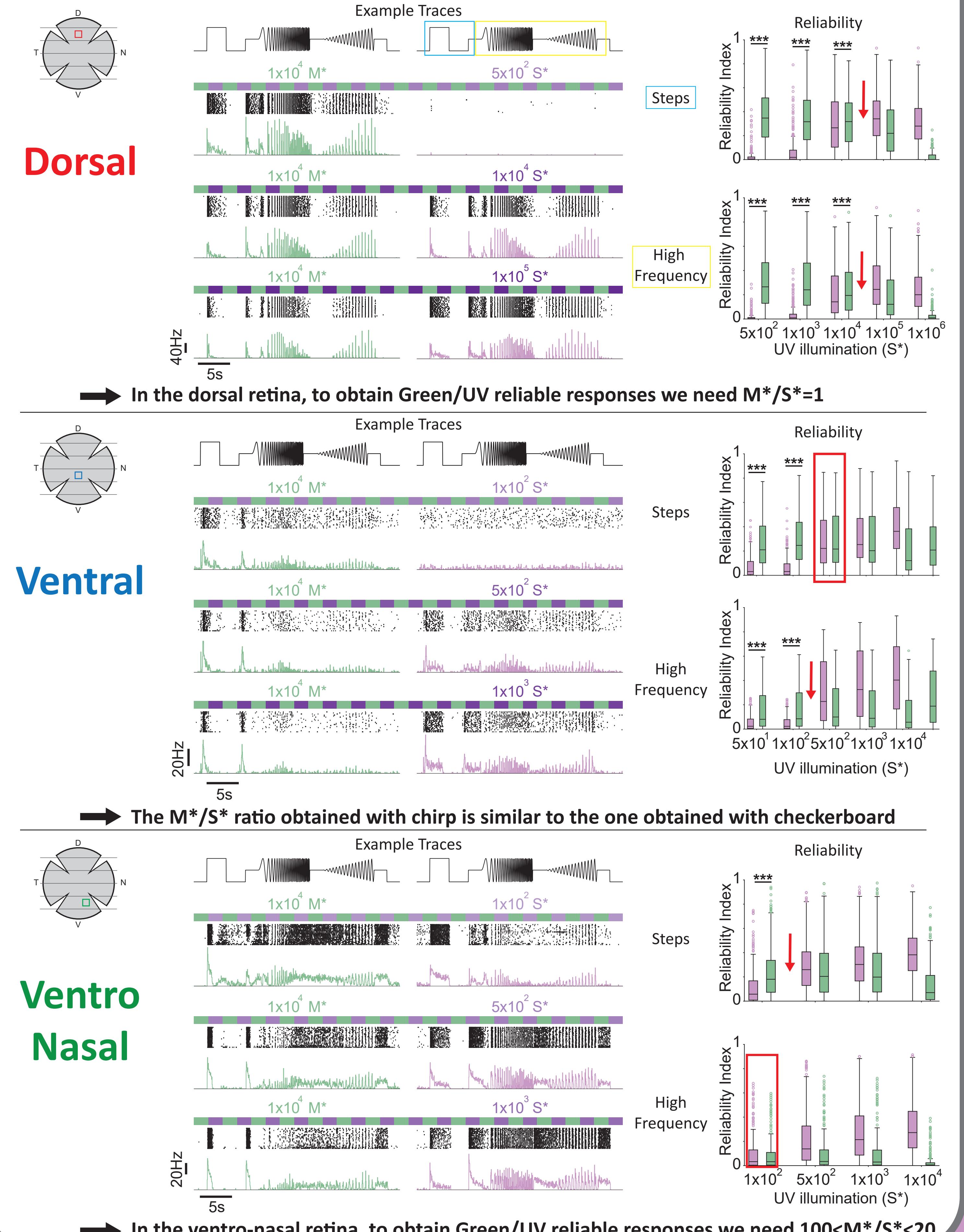
## (2) M\*/S\* RATIO THAT BALANCES GREEN & UV RESPONSES



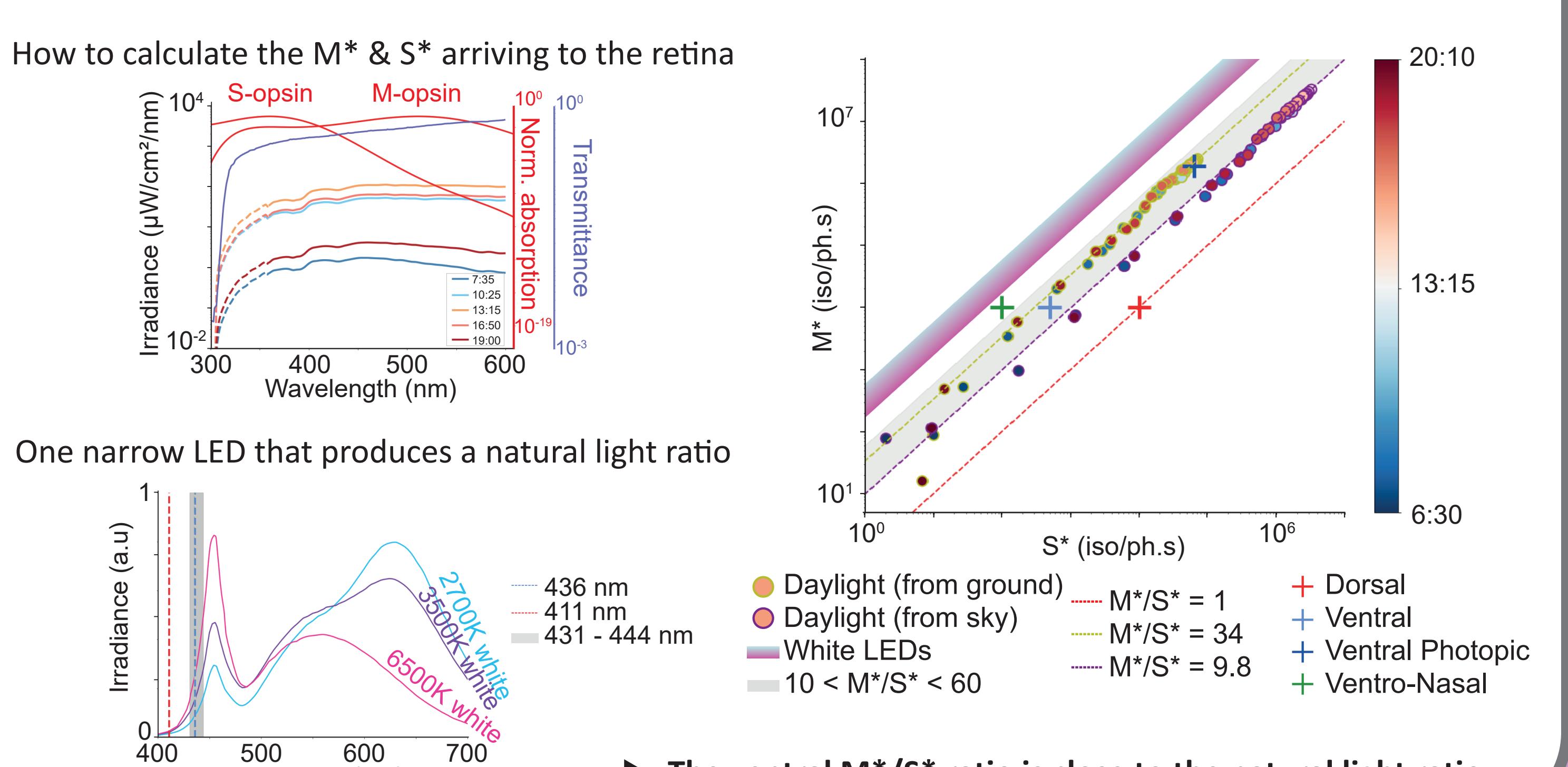
## (3) IS THIS RGC-TYPE-SPECIFIC?



## (4) DOES THE BALANCING M\*/S\* VARY ACROSS THE RETINA?



## (5) THE M\*/S\* ARRIVING TO THE RETINA FROM NATURAL LIGHT



## (6) CONCLUSIONS

- In the ventral retina we need  $60 < M*/S* < 10$  for balancing responses to:
  - Fine spatial features
  - High temporal fluctuations
- Green STA loss due to high S\* is not cell type specific
- M\*/S\* balancing ratio varies across the ventro-dorsal axis
- Our empirically found M\*/S\* is consistent with the natural daylight spectrum



Preprint on BiorXiv

