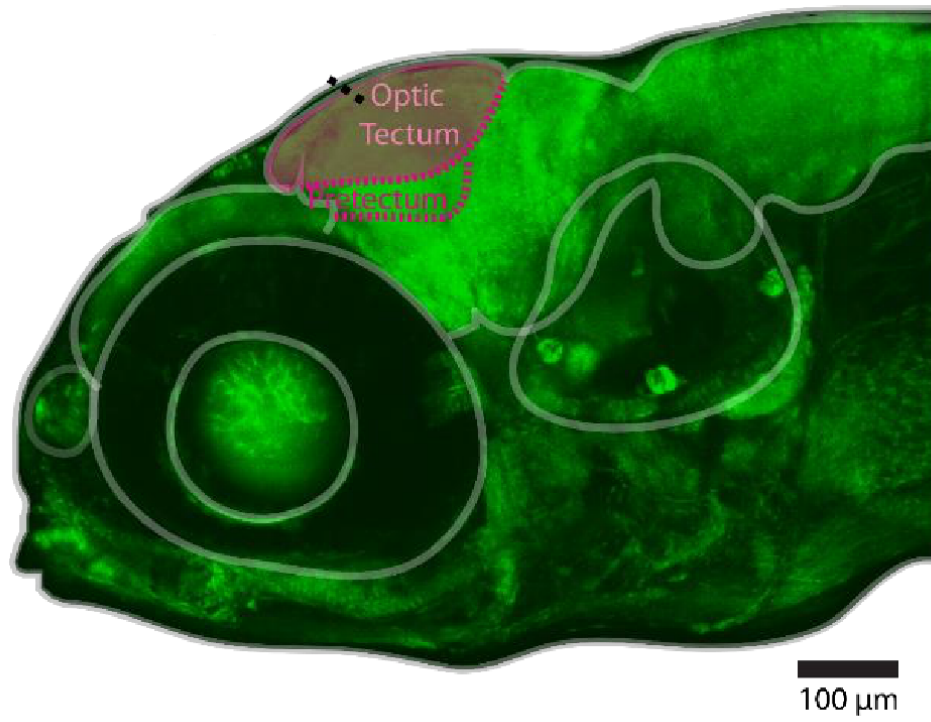


# Color-blindness of direction-selective units in the optic tectum

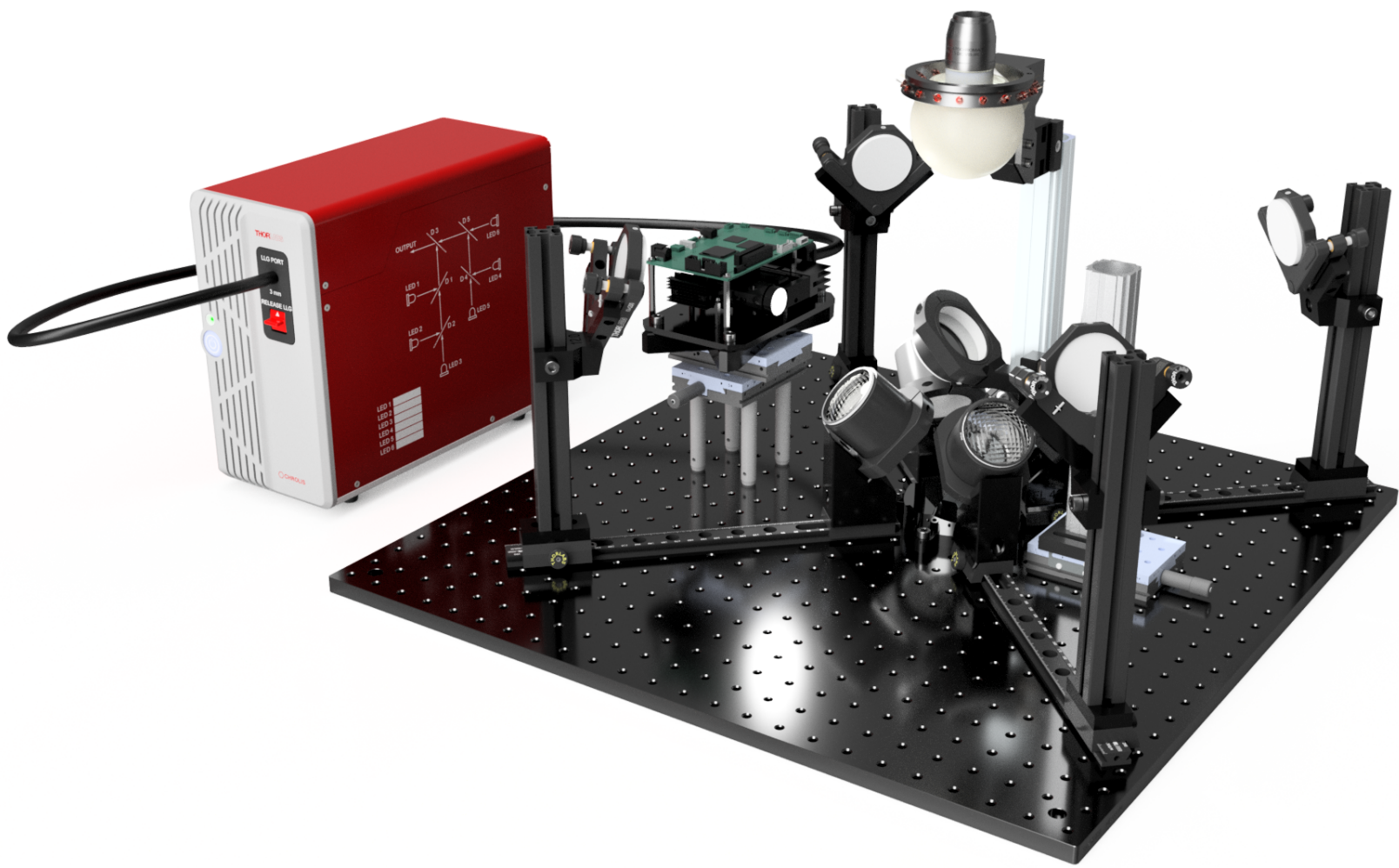
Alexander Wendt, Patrick Weygoldt

Systems Neurobiology, Department of Neurobiology, University of Tuebingen



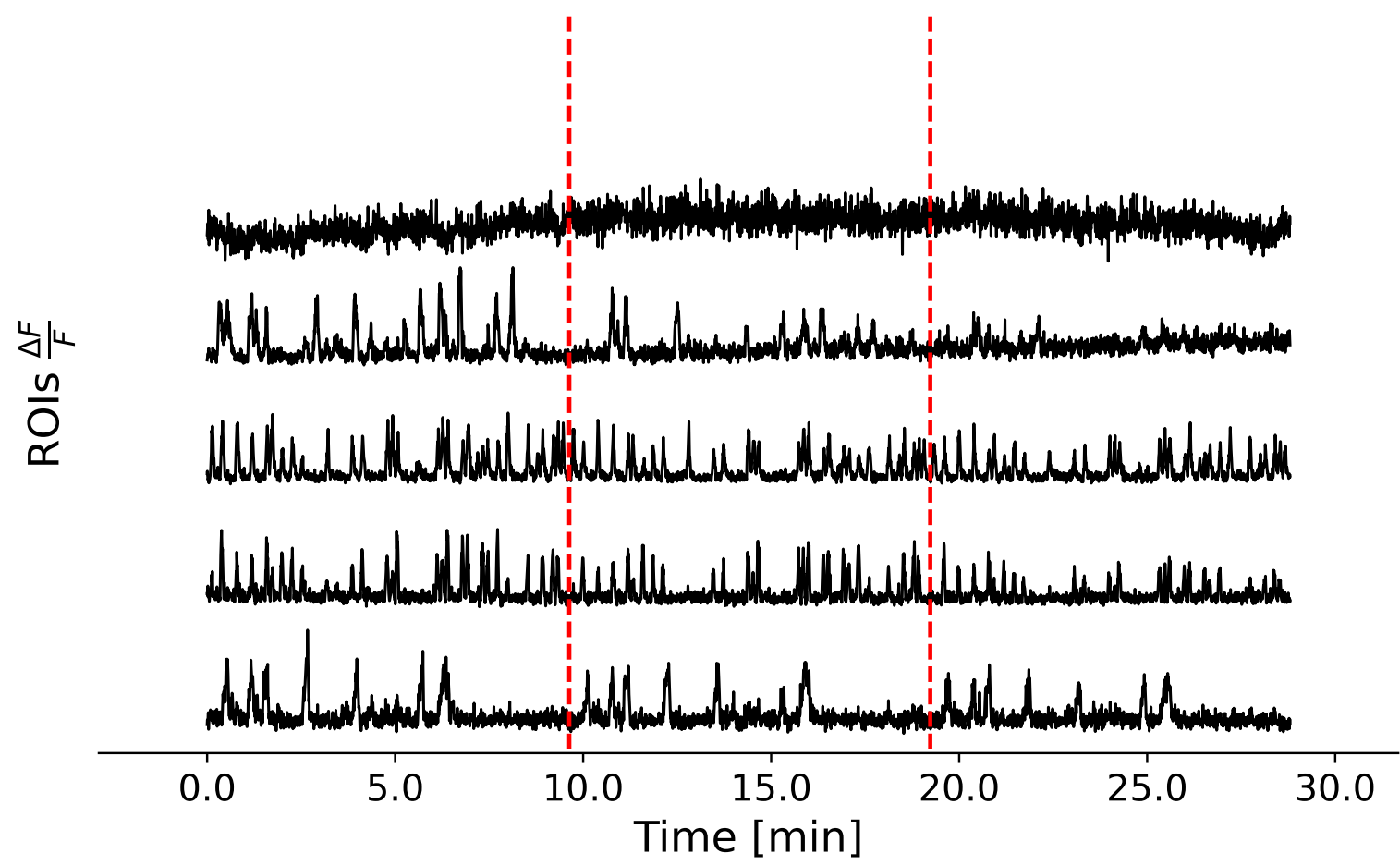
## Introduction

Color has a big influence on motion vision in zebrafish. Michael B. Orger (2004) displayed that zebrafish in behavioural experiments show motion blindness to a grating of different colors, but little is known about the cortical structures conveying the „color-motion“ perception. We wanted to investigate the optic tectum of the zebrafish larvae with calcium imaging.

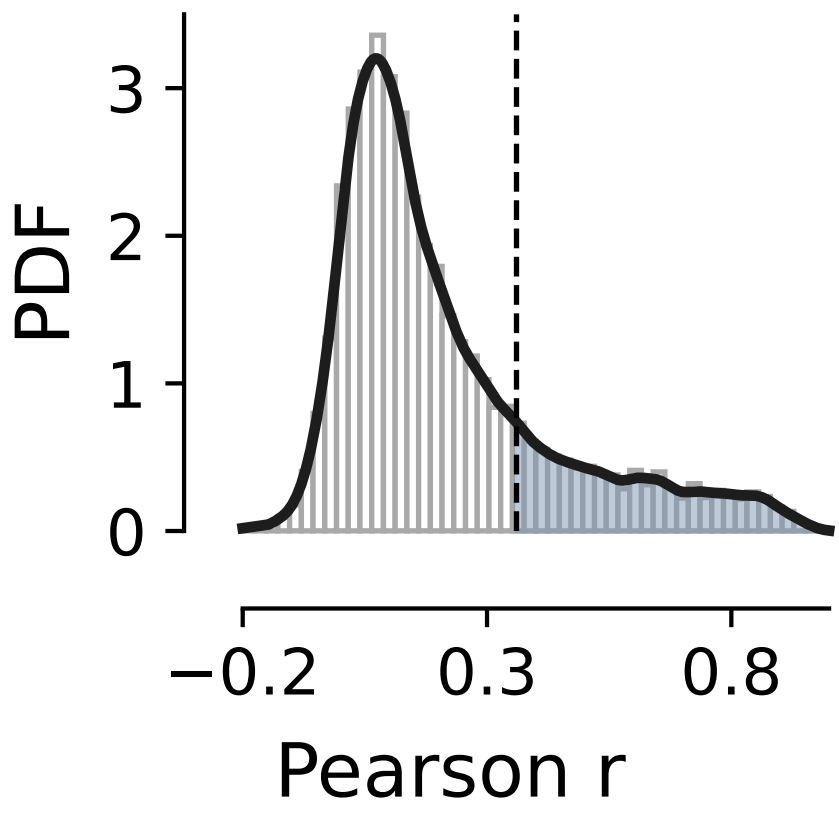


## Preprocessing:

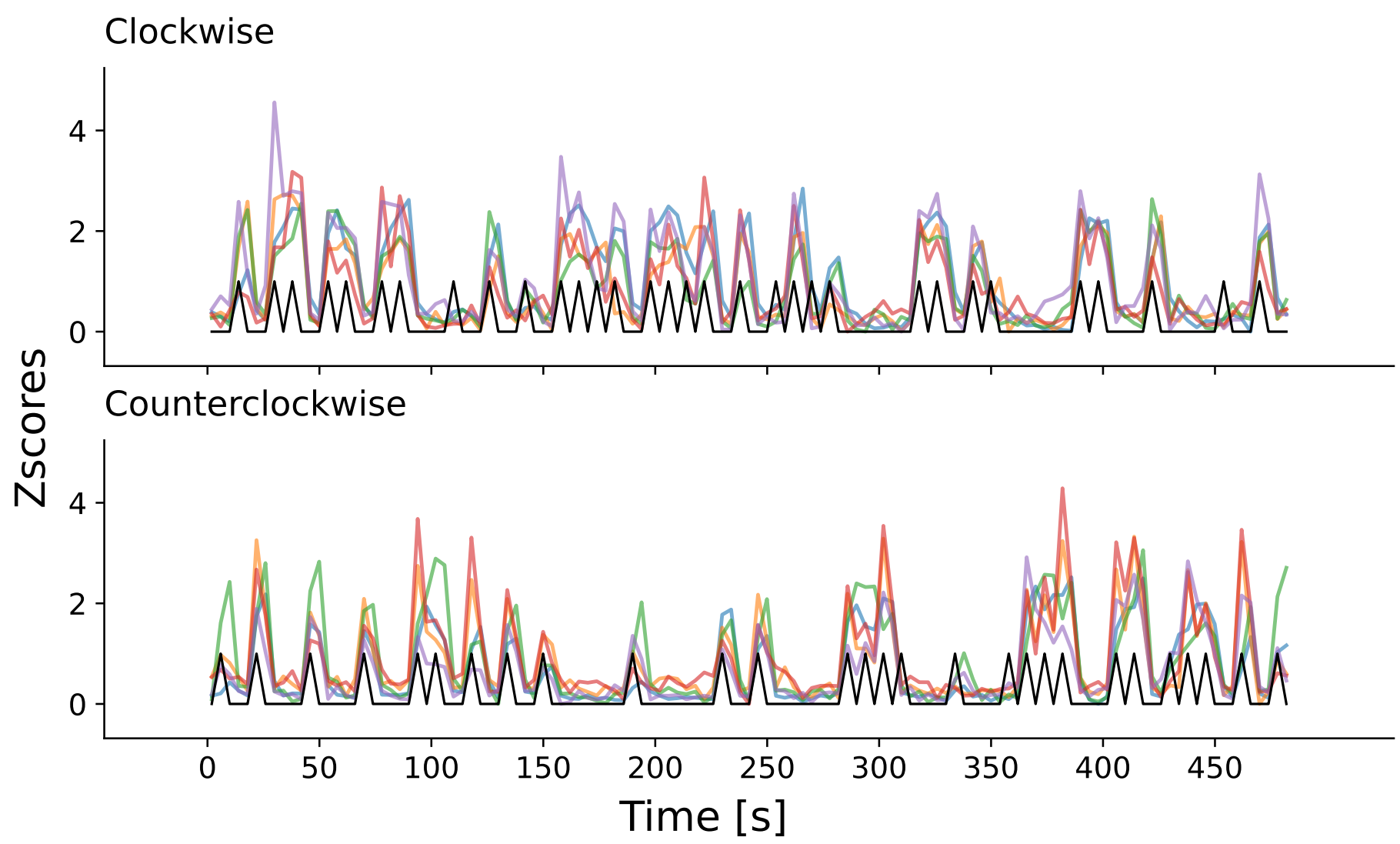
**1. Region of Interests (ROI):** corresponds to neurons with genetically. The lumiance  $F$  of the calcium imaging is calculated from the change of luminance normalized to the average luminance  $F = \frac{\Delta F}{F}$ .



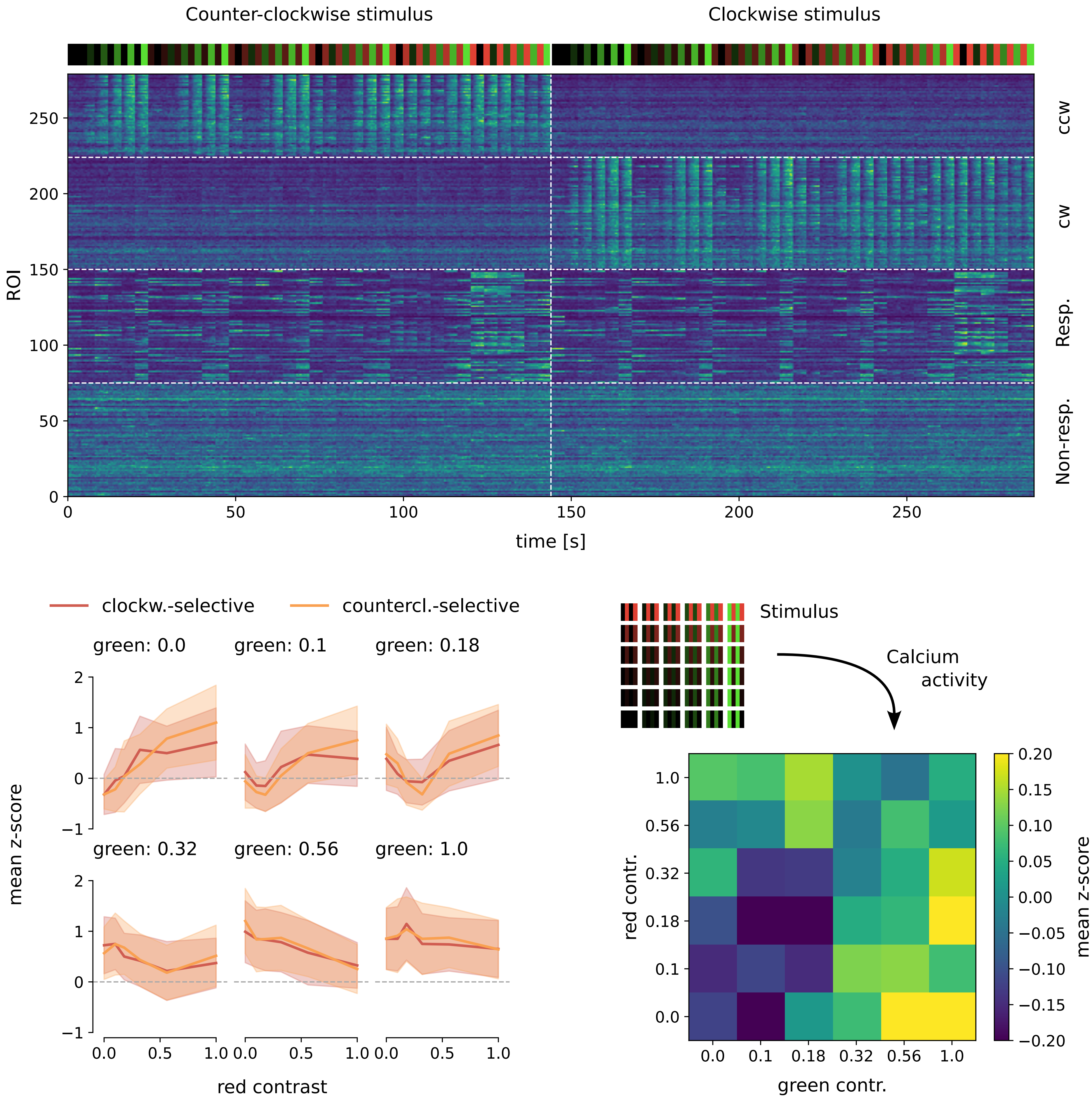
**2. Active ROIs:** To get the active ROIs we computed the correlation within 3 repeats of the same stimulus.



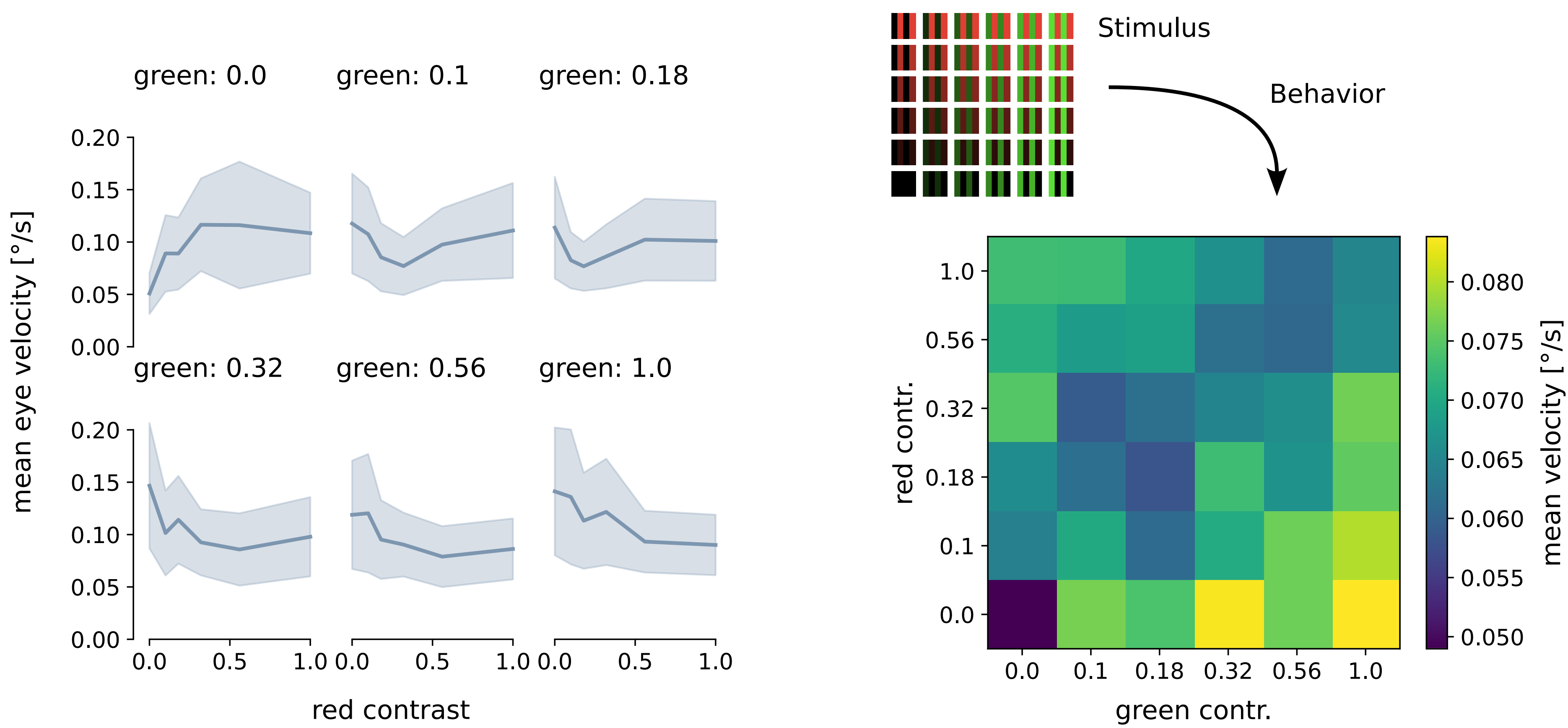
**2. Direction selective ROIs:** next Step was to search for ROIs that correlated with a direction selective regressor (1 for clockwise = CW or counter-clockwise = CCW, else is 0).



## 2-photon calcium imaging



## Behavior



## Conclusion

- The optic tectum is mottion blind for various contrast levels