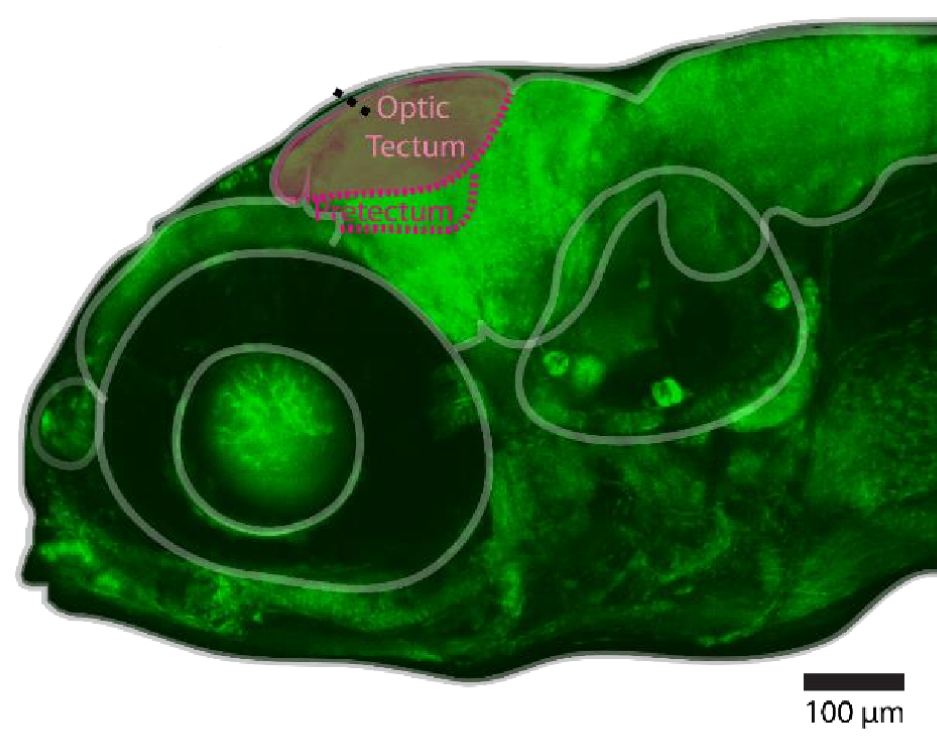


Color-blindness of direction-selective units in the zebrafish optic tectum

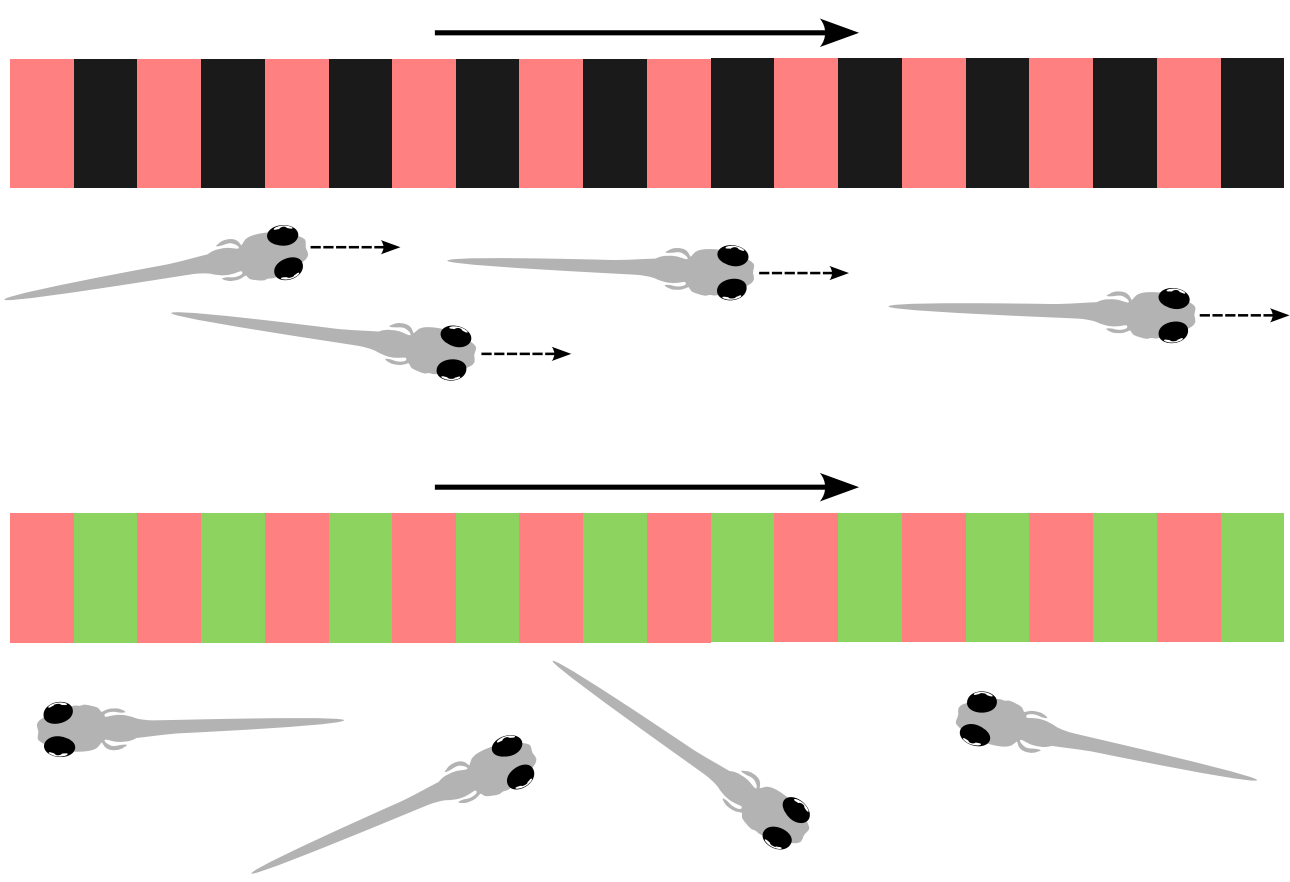
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Introduction

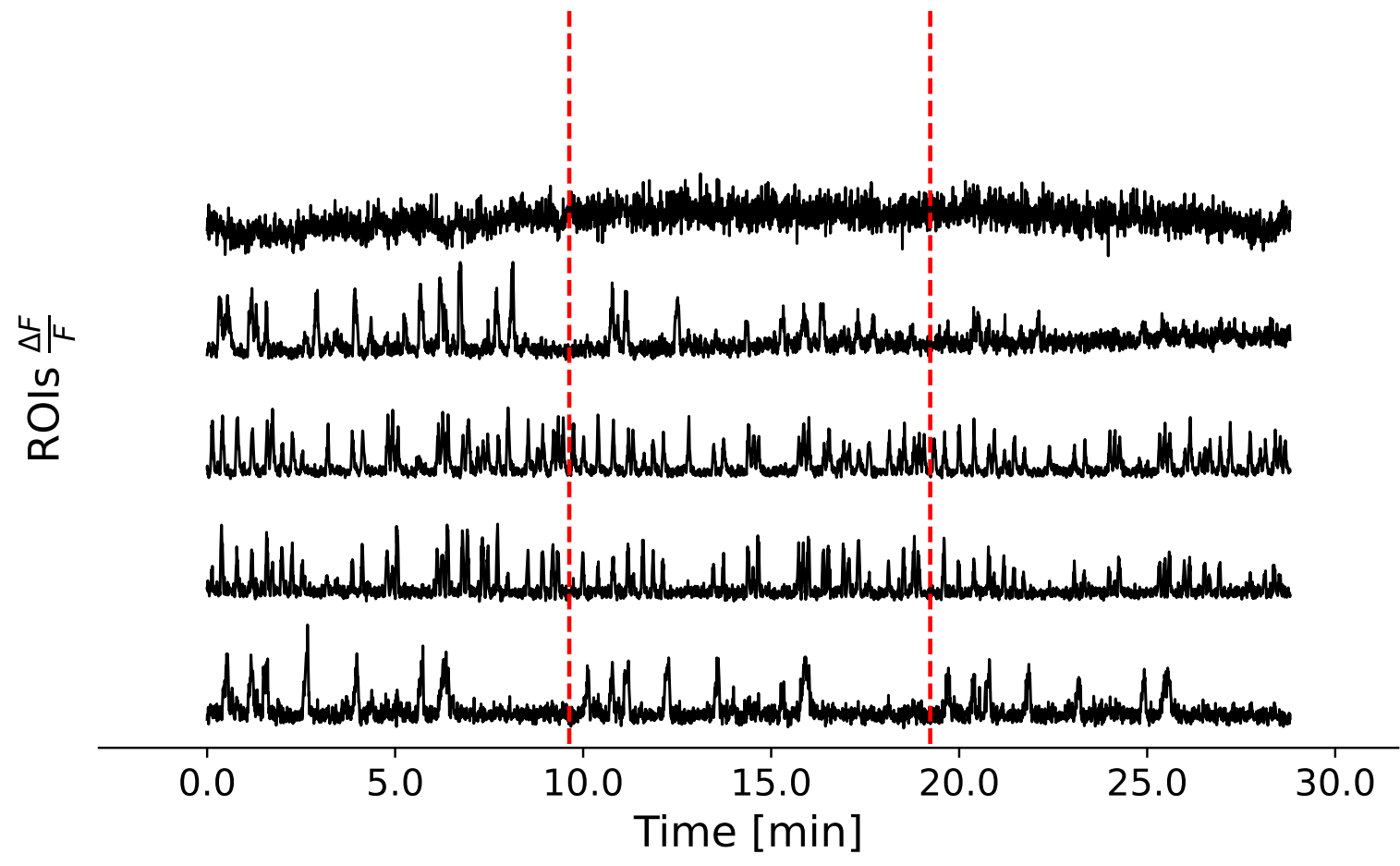
Color has a big influence on motion vision in zebrafish. Orger and Baier (2004) displayed with the optomotor response of zebrafish that motion blindness can be induced to a grating of different colors.



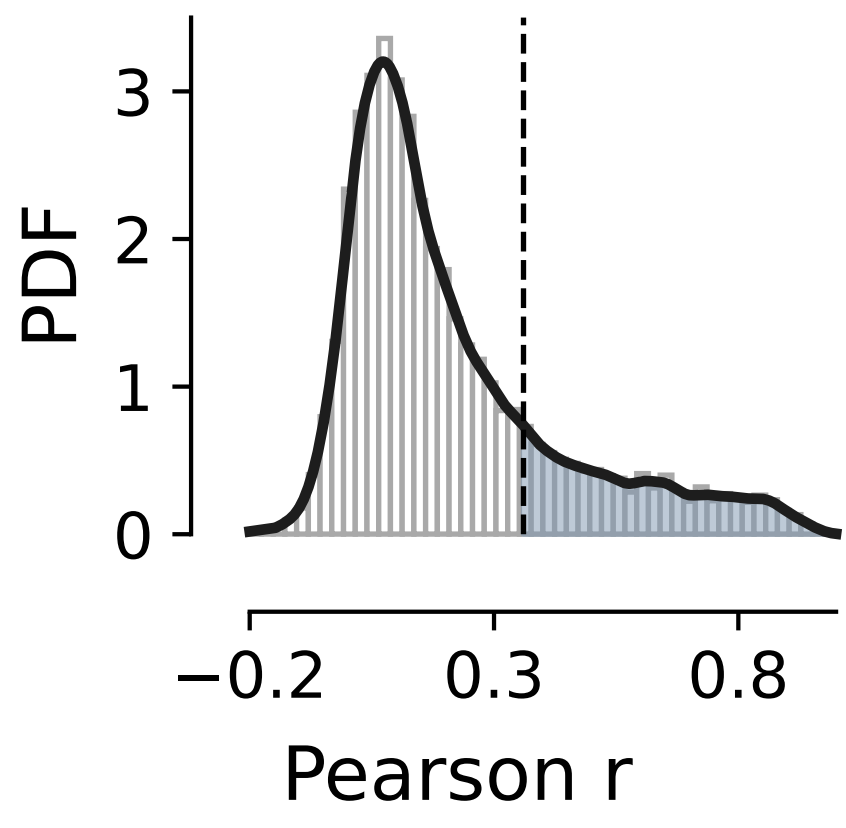
But little is known about the cortical structures conveying the „color-motion“ perception. We wanted to investigate the optic tectum of the zebrafish larvae with calcium imaging.

Preprocessing:

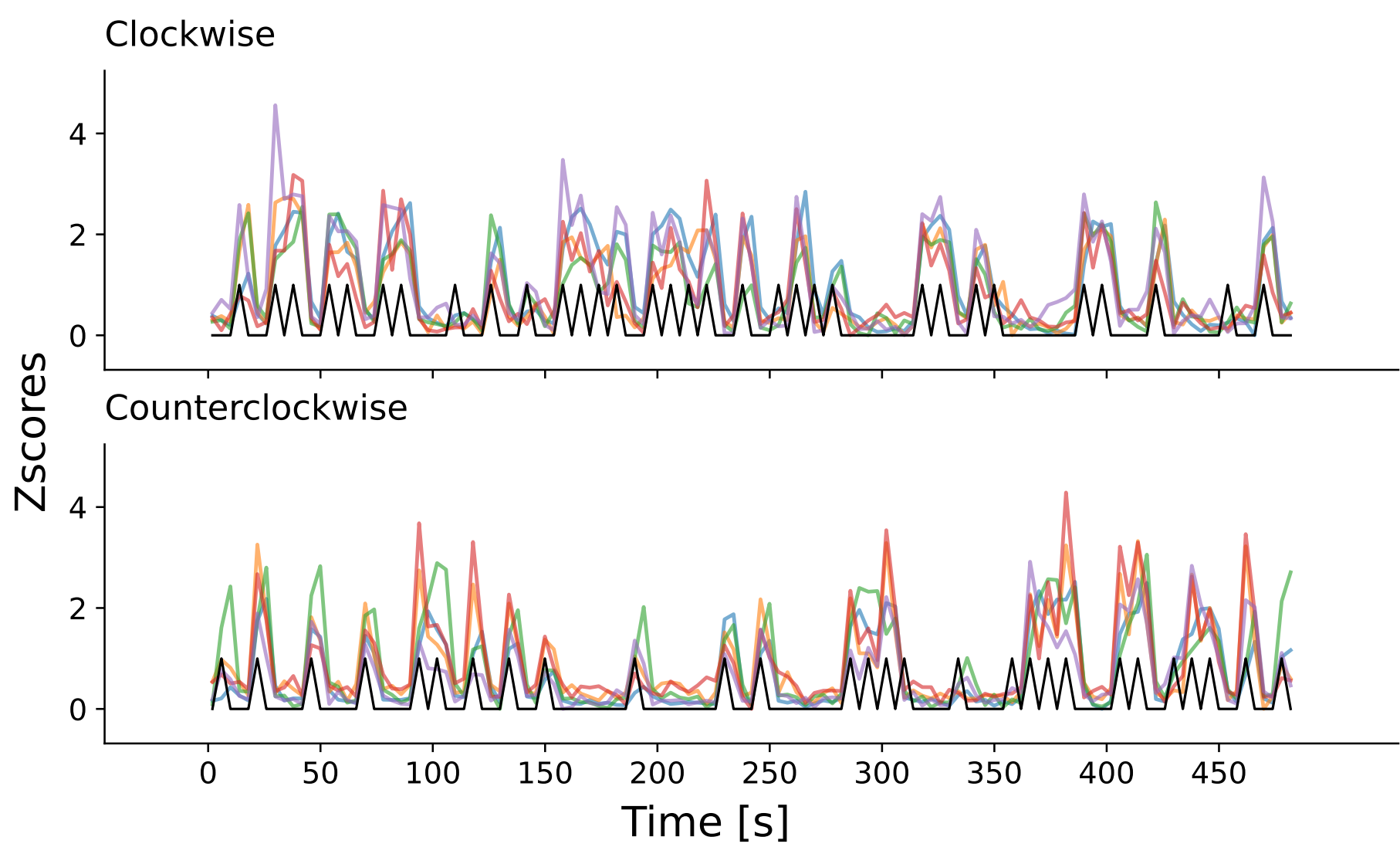
1. Region of Interests (ROI): corresponds to neurons with genetically. The lumiance F of the calcium imaging is calculated from the change of lumiance normalized to the average lumiance $F = \frac{\Delta F}{F}$.



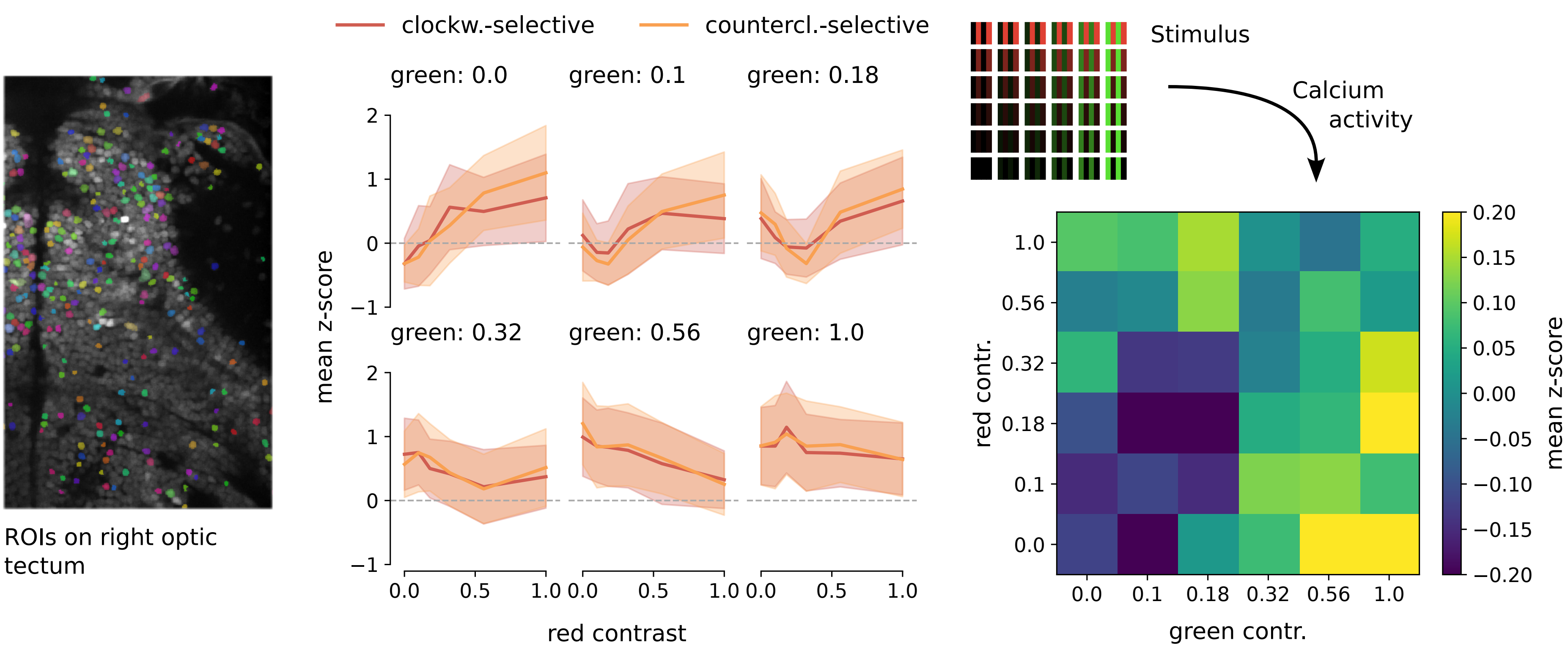
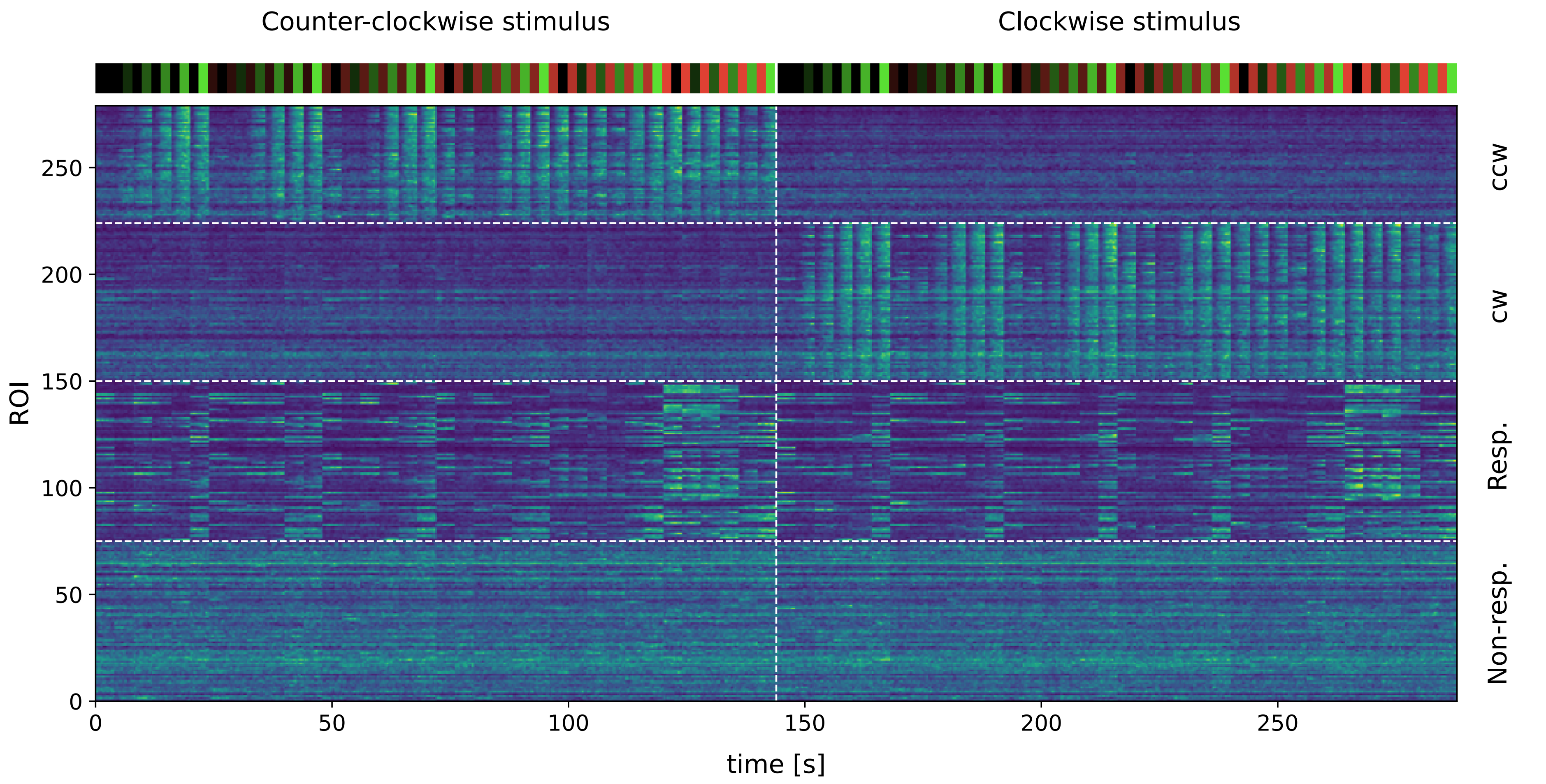
2. Active ROIs: To get the active ROIs we computed the correlation within 3 repeats of the same stimulus.



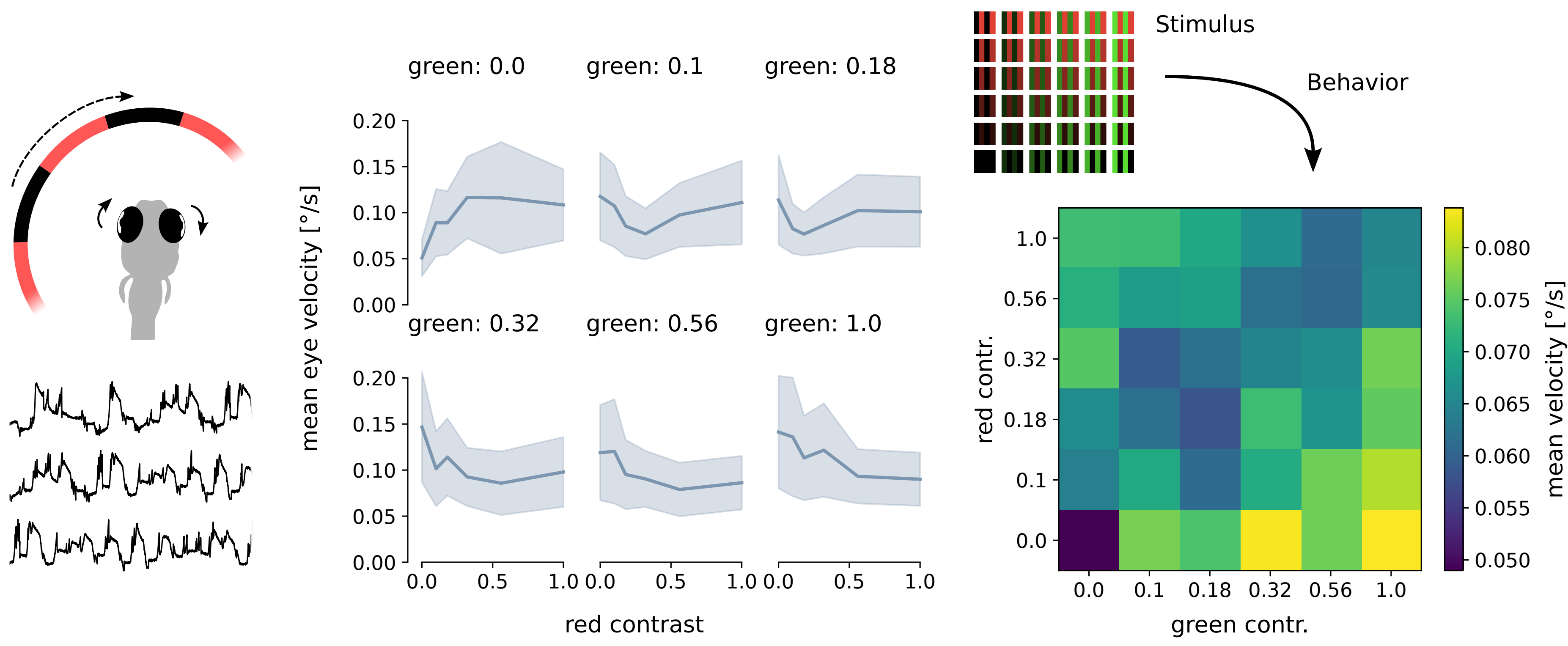
2. Direction selective ROIs: next Step was to search for ROIs that correlated with a direction selective regressor (1 for clockwise = CW or counter-clockwise = CCW, else is 0).



2-photon calcium imaging



Behavior



Conclusion

- The optic tectum is motion blind for various contrast levels