

Description of Additional Supplementary Files

File name: Supplemental Video 1

Description: Movie of a line scan through the pedicles of the two neighbouring cones shown in [Fig. 1D](#), in the nasal outer retina of a 6 dpf cx55.5:SFiGluSnFR larval zebrafish. The dendritic tips of HCs expressing SFiGluSnFR invaginate the cone terminals, providing spatially separated antenna for measuring glutamate release at individual cones. The video shows changes in SFiGluSnFR fluorescence in response to a full-field visual stimulus of a train of 40 ms off-steps of light from a bright background (see also, [Fig. 1E](#)). The line scan was taken at 1 kHz (128 X 1 pixels), and each frame of the movie represents a 100 ms interval, i.e. 100 scans of the same line, with time scrolling upwards in the y axis). The cone pedicle on the right-hand side exhibits an increase in SFiGluSnFR signal to light-off and a decrease to light-on and is functionally identified as belonging to a PR1. The cone pedicle on the left-hand side exhibits opponent SFiGluSnFR responses and is functionally identified as a non-PR1, likely PR2.

File name: Supplemental Video 2

Description: Movie of a line scan through the pedicles of four neighbouring cones shown in [Fig. 2B](#) in a cx55.5:SFiGluSnFR larval zebrafish. As in supplemental video S1, the video shows changes in SFiGluSnFR fluorescence recorded at 1 kHz, displaying 100 line scans per frame. The full-field visual stimulus was off-steps of light from a bright background of varying duration, from 5 to 100 ms presented in a pseudorandom order (see also, [Fig. 2A](#)). The cone pedicle on the far right-hand side corresponds to cone 1, and the cone on the far left-hand side corresponds to cone 2 in [Fig. 2A-E](#).

File name: Supplemental Video 3

Description: Video sequence of translatory movement recorded in the zebrafish natural habitat (left), and processed sequence to phenomenologically mimic encoding of this scene by the sustained (middle) and transient (right) release components of PR1. Note how the sustained representation yields a relatively faithful representation of the original scene, while the transient representation specifically highlights foreground structure.