

SOP Test 13 - Manual Optokinetic Response Measurements (OKR)

1 Purpose

Assessing visual performance by triggering stereotyped eye movements

2 Scope

The OKR is an easy to test assay for visual ability and has been used for screen, uncovering blind mutant strains. The behavior consists of a smooth pursuit movement in the direction of the moving object and a fast resetting movement (saccade). Ideally the speed of the pursuit movement is quantified, but counting saccades is a reasonable approximation.

3 Safety requirement

4 Associates documents

5 Notes

This behavior is robust in larvae older than 5 dpf.

6 Quality control

7 Equipment

Binocular (e.g. Zeiss SV8)

Petridish (35 mm diameter)

Transparent plastic cyclinder (5 mm diameter)

Paper with stripe pattern (e.g. 8 black stripes of 23° width)

Light Source with light guides (e.g. Schott KL 1500)

Needle (in pin holder)

Pipettes (plastic)

Turntable (Transparent drum is fitted on turntable; turning can be manually or by a motorized drive)

8 Supplies

Pipettes (plastic)

E3 medium

Methyl cellulose solution (3%, prewarmed to 28°C)

9 Procedure

1. Fit drum with striped patterned paper of choice
2. Embed zebrafish larvae in the center of a 35-mm Petri dish filled with prewarmed (28°C) methyl cellulose by using a needle (in pin holder). Embed one larva per dish, dorsal side up.
3. Rotate drum and watch eye movements
4. Score direction of movements (with the drum or reverse to the drum movement). Simple quantification can be achieved by counting saccades per given time interval.