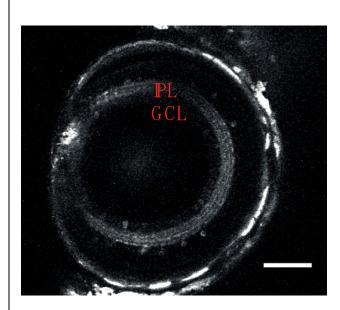
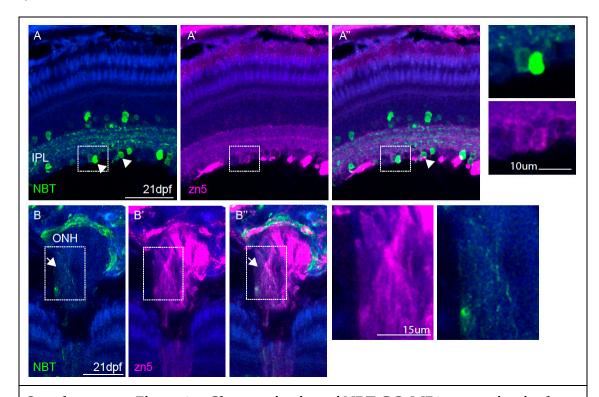


Supplementary Figure 1. Imaging chamber and the procedure of solution oxygenation. (A) Fish was imaged in a plastic custom-made chamber (90x70x15 mm). Three sides of the chamber were covered with black tape and the screen was covered with an opaque film (See Methods for more information). **(B)** Oxygenation was delivered through plastic tubing (left) from a gas bottle containing O₂/CO₂ mix (right).



Supplementary Figure 2. NBT:GCaMP3 transgenic line; expression in the retina (right, 10 dpf). In the eye, GCaMP3 is expressed in the inner plexiform layer (depicted as IPL) and in a small number of cells $(2.75 \pm 0.9 \text{ per field of view}, n = 10 \text{ fields of view})$ in the ganglion cell layer (depicted as GCL). For presentation purposes, images were filtered using a Gaussian filter (sigma = 1).



Supplementary Figure 3. Characterisation of NBT:GCaMP3 expression in the eye of 21 dpf fish. A, a small number of neurons in the ganglion cell layer (arrowheads) are zn5 positive, a marker for retinal ganglion cells. The inset on the right shows labelling of two individual cells in the ganglion cell layer. B, the NBT promoter labels a small number of retinal ganglion cell axons in the optic nerve (ONH, white arrows). The blue label is a DAPI stain. Scale bars in A=50 μ m, B = 25 μ m