Supplementary Figure 1

Retinotopic mapping at late third instar

Retinotopic mapping is revealed by labeling random clones of cells with UAS-CD8GFP under the control of GMR-Gal4 (white) using the MARCM system. All R axons are visualized by mAb24B10 (magenta) and the lamina cells are marked by Dac expression (blue). The retina shown on the left is a three-dimensional reconstructed image, whereas the lamina shown on the right is a single optical section. The locations of cell bodies in the retina and of their axonal terminals in the lamina were carefully examined in 100 independent clones of 20 samples. R cells in the same clones always project their axons to neighboring areas in the lamina. In addition, the topographic positions of the axonal terminals in the lamina coincide well with the topographic positions of their cell bodies in the retina. A typical example is shown above. Photoreceptor cell bodies of four independent clones are encircled by yellow, green, light blue and orange dots in the retina. Clusters of axon terminals are found in the lamina, as indicated by colored dots. Axons of the larval photoreceptor organ (Bolwig’s nerves) are indicated by arrows. Scale bar is 50 µm.