SUPPLEMENTARY MATERIAL

corresponding to:

Mutation of frizzled8a delays neural retinal cell differentiation and results in microphthalmia in zebrafish

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Supp. Fig. S1. Validation of the *fz8a* mutant genotype. RT-PCR and sequence analyses of *fz8a* mutant transcripts. (A) Genotyping of wild-type embryos, heterozygous and homozygous *fz8a* mutants, using indicated primer pairs. (B) RT-PCR analysis of *fz8a* mutant transcripts in wild-type, normal siblings and microphthalmic MZ*fz8a* embryos. (C) Sequence analysis of the PCR products from wild-type and microphthalmic embryos. The deleted region is underlined in the wild-type sequence and the TALENs targeting sequences are shadowed.
**Supp. Fig. S2.** Phenotype analysis of MZ/fz8a mutants from three independent fish pairs. Numbers on the top of each stacked column indicate total embryos analyzed at 72 hpf.

**Supp. Fig. S3.** Specification of the brain region and the eye field is not affected in MZ/fz8a mutants. In situ hybridization of indicated marker genes at bud stage. (A,A') otx2, anterior neural plate. (B,B') six3b, forebrain. (C,C') rx3, eye field. (D,D') pax2a, midbrain/hindbrain boundary. (E,E') pax6a, eye field. All embryos are anterior view with dorsal region on the top. Scale bar, 250 μm.

**Supp. Fig. S4.** Abnormal lamination of retinal layers in microphthalmic embryos. (A-B'') Wild-type embryos and normal siblings show similar organization of retinal layers. Microphthalmic embryos display abnormal organization of retinal layers. (C) Statistics of the relative width of different retinal layers between wild-type and microphthalmic embryos. Bars represent the mean ± s.d. from three independent experiments with a total of 20 sections at similar position for each condition (*, P<0.05; ***, P<0.001). Scale bar, 50 μm.