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Supplemental Information

***ube3d*, a New Gene Associated with Age-Related Macular Degeneration, Induces Functional Changes in Both *In Vivo* and *In Vitro* Studies**

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Supplementary Material

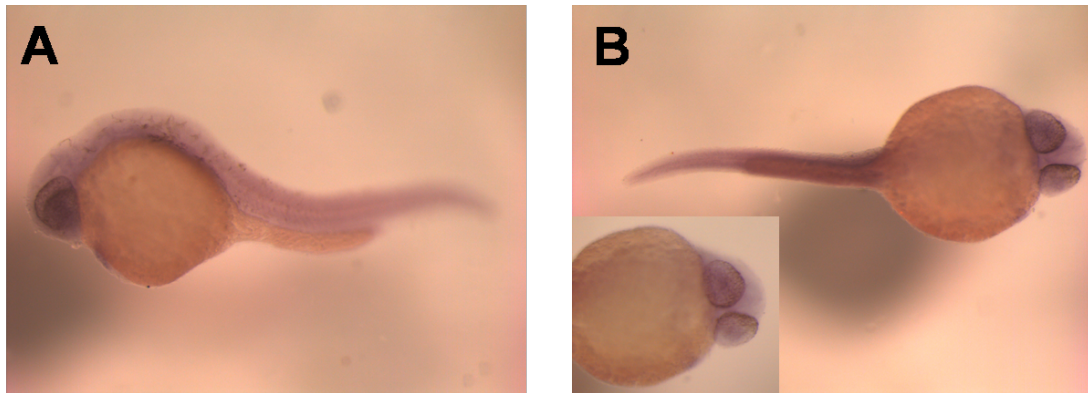


Fig S1. The spatial specificity of ube3d expression in Zebrafish. (A) Side bitmap of ube3d expression in Whole embryo in situ hybridization (WISH) of 24 hpf wild-type zebrafish. (B)Supine bitmap of ube3d expression in Whole embryo in situ hybridization (WISH) of 24 hpf wild-type zebrafish

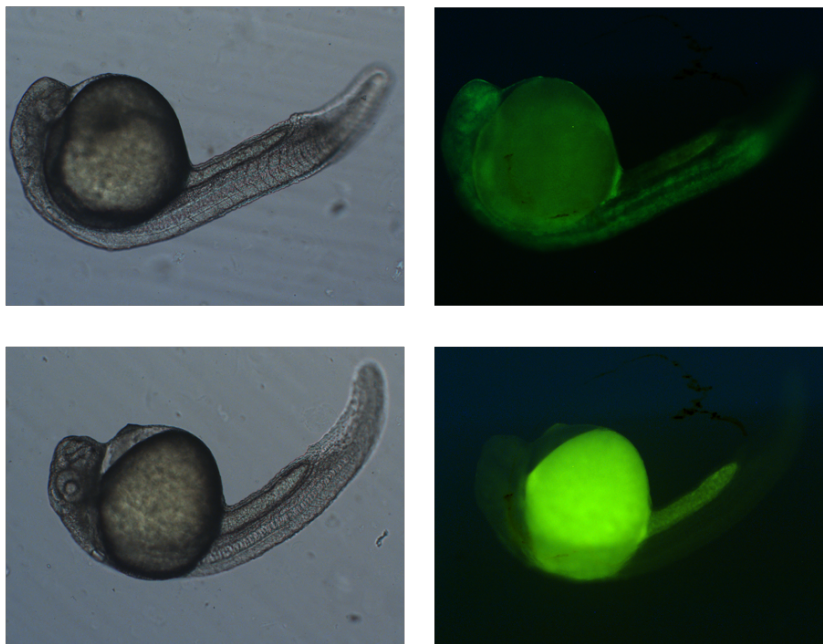
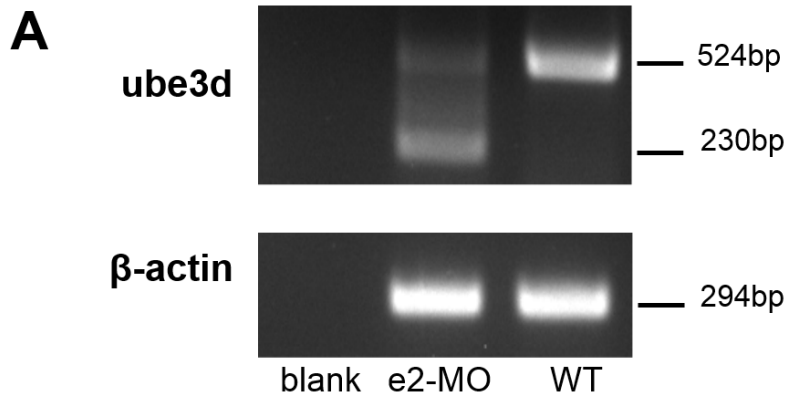


Fig S2. Verification of the *ube3d* knockout efficiency in zebrafish.

(A) RT-PCR was used to measure *ube3d* expression in 24 hpf wild-type zebrafish, e2 MO *ube3d*-knockdown zebrafish and blank control group (under normal circumstances, the length of *ube3d* is 524bp; due to the deletion length of exon 2 of *ube3d*, the length of e2 MO *ube3d*-knockdown zebrafish change to be 230bp). The following figure at right shows the bright field morphology of wild-type 24hpf and ATG-MO *ube3d*-knockdown zebrafish; the following figure on the left shows the expression of the ATG-MO target sequence (green fluorescence table) in the wild-type 24hpf and the ATG-MO zebrafish.

A

120 hpf				
Adaptation	Light - on	Light - off	Light - on	Light - off
10 min	10 min	10 min	10 min	10 min

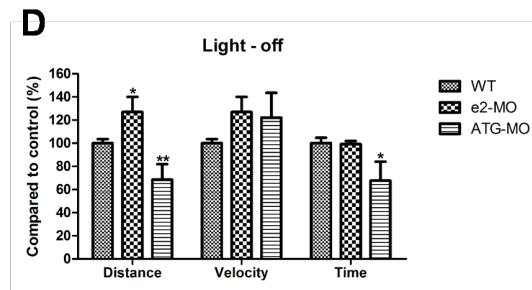
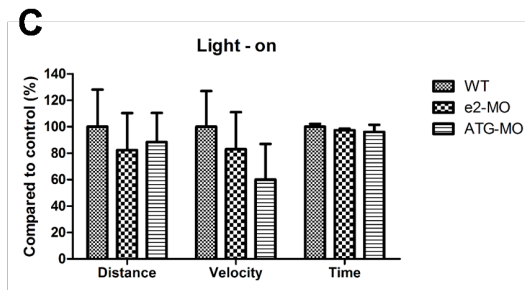
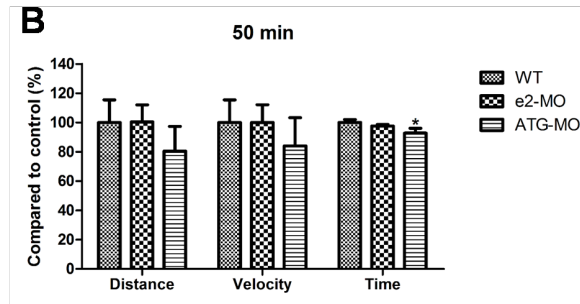


Fig S3. Effect of ube3d gene knockout on the activity of zebrafish. (A) Stimulus program in 120 hpf wild-type zebrafish, e2 MO ube3d-knockdown zebrafish and ATG-MO ube3d-knockdown zebrafish (total 50min: environmental adaptation-10min, bright stimulus-10min, dark stimulus-10min, bright stimulus-10min dark stimulus-10min, dark stimulus-10 min); (B) the comparison of the whole 50 minutes motor activity in wild-type zebrafish, e2 MO ube3d-knockdown zebrafish and ATG-MO ube3d-knockdown zebrafish; (C) the comparison of the motor activity under dark stimulation in wild-type zebrafish, e2 MO ube3d-knockdown zebrafish and ATG-MO ube3d-knockdown zebrafish; (D) the comparison of the motor activity under bright stimulus in wild-type zebrafish, e2 MO ube3d-knockdown zebrafish and ATG-MO ube3d-knockdown zebrafish ; All results were expressed as Mean \pm standard deviation (Mean SD). * P < 0.05, ** P < 0.01.