**Figure S1.** Expression levels of amino acid transporter family 1 before and after DRG injury.

**Figure S2.** Spontaneous locomotor behavior in inhibitor-treated zebrafish. (**a, b**) The line illustrates the 6 dpf zebrafish larvae’s swimming trajectory differences from the DMSO and OH-Pro groups evaluated over 1 h Data shown as mean ± sem. Assessed by unpaired *t*-test. ns, not significant.

**Figure S3.** Axonal regeneration in heterozygotes of the *slc1a4* mutant line. (**a, b**) Representative diagram of confocal imaging of M-cells axon regeneration between WT and *slc1a4*+/-. Data shown as mean ± sem. WT/AB: 579.2 ± 22.99 μm, *slc1a4*+/-: 391.7 ± 10.14 μm. scale bar,50 μm. Assessed by unpaired *t*-test. \*\*\*\* *p* < 0.0001.