



Supplementary Figure 1

## Supplementary Figure 1

### Spontaneous swimming in dorsal-V0v-ablated fish did not show any obvious defects

**(A)** Laser ablation of dorsally located V0v neurons. Confocal stacked images of Tg[*evx2-hs:GFP*] fish before (left) and after (right) laser ablation. Images of two hemi-segments are shown. Magenta arrows show dorsally located V0v neurons that were chosen for laser ablation. Brown lines show boundaries of muscle segments. **(B)** Graphs of head yaw angle (y axis) versus time (x-axis) during swimming. Left, intact fish. Right, dorsal-V0v-ablated fish. For the rest of the panels (C-H), five fish were examined for each fish type. For each fish, 10 swim bouts (or a 1-min movie in the case of E) were examined. Data obtained from the same fish are color coded. **(C)** Maximum head yaw angle of intact and dorsal-ablated fish during swim bouts. Average values: intact fish,  $6.40 \pm 2.16$ ; dorsal-V0v-ablated fish,  $6.12 \pm 2.18$ . Statistically not significant (n.s.;  $p = 0.54$ ). **(D)** Mean head yaw angle for displacement peaks of intact and dorsal-V0v-ablated fish during swim bouts. Average values: intact fish,  $5.35 \pm 1.51$  degrees; dorsal-V0v-ablated fish,  $4.98 \pm 1.56$  degrees. Statistically not significant (n.s.;  $p = 0.18$ ). **(E)** Occurrence frequency of swim bouts (per min) of intact and dorsal-V0v-ablated fish. Average values: intact fish,  $40.50 \pm 4.90$  times/min; dorsal-V0v-ablated fish,  $40.15 \pm 5.59$  times/min. Statistically not significant (n.s.;  $p = 0.75$ ). **(F)** Swim bout duration of intact and dorsal-V0v-ablated fish. Average values: intact fish,  $40.50 \pm 4.90$  ms; dorsal-V0v-ablated fish,  $40.15 \pm 5.59$  ms. Statistically not significant (n.s.;  $p = 0.75$ ). **(G)** Average swim speed in bouts of intact and dorsal-V0v-ablated fish. Average values: intact fish,  $146.46 \pm 14.78$   $\mu\text{m}/\text{ms}$ ; dorsal-V0v-ablated fish,  $161.15 \pm 16.07$   $\mu\text{m}/\text{ms}$ . Statistically not significant (n.s.;  $p = 0.31$ ). **(H)** Average tail beat frequency in bouts of intact and dorsal-V0v-ablated fish. Average values: intact fish,  $25.44 \pm 2.48$  Hz; dorsal-V0v-ablated fish,  $24.76 \pm 3.05$  Hz. Statistically not significant (n.s.;  $p = 0.21$ ).