



Fig. S1. Sensory neurons expressing Omp or Trpc2 have no detectable targeting errors in *sema3d* mutants. *A-B*, Single optical sections through 72 hpf *omp*:RFP larvae (frontal view). Axons shown in red. Dorsal is up and medial is to the right of the image. *C-D*, Single optical sections through 72hpf *trpc2*:Venus larvae (frontal view). Axons shown in green. Propidium iodide (blue) labels cell bodies revealing protoglomeruli as cell-free regions. Scale bar (in *D*): *A-D*, 50µm. *E-G*, The percentage of olfactory bulbs displaying a projection to a particular protoglomerulus or non-protoglomerular regions (other) are shown. Homozygous *sema3d* mutants (black bars) are compared to heterozygous (grey bars) and wild-type (white bars) siblings. Statistical significance was estimated using two-tailed Fisher's exact test ($p < 0.05^*$, $p < 0.01^{**}$, $p < 0.001^{***}$). Error bars represent SE of the sample proportion. *A, B, E*, Omp positive axons project to the same protoglomeruli in *sema3d* mutants as in controls. *C, D, F*, The *Trpc2*:Venus projection is unaltered in *sema3d* mutants. *G*, OR111-7 transgene-expressing axons do not display an increase in projections to the listed protoglomeruli or to non-protoglomerular regions. *H*, single optical section through a 72 hpf *sema3d*^{+/-}; *nrp1a*^{+/-}; *omp*:RFP; OR111-7:IRES:GAL4;UAS:Citrine larva. The ectopic projection to DZ in *sema3d*^{+/-}; *nrp1a*^{+/-}; *omp*:RFP; OR111-7:IRES:GAL4;UAS:Citrine larvae is Omp positive. Scale bar (in *H*): *H*, 50µm. CZ, central zone; DZ, dorsal zone; MG, medial protoglomeruli; LG1, lateral protoglomerulus 1; LG2, lateral protoglomerulus 2, LG3, lateral protoglomerulus 3.

Table S1. The localization of class 3 semaphorins in the anterior and posterior regions of the 36 hpf olfactory bulb.

Semaphorin	Localization at 36 hpf	
	Anterior OB	Posterior OB
<i>sema3aa</i>	dorsomedial, lateral, central	dorsomedial
<i>sema3sb</i>	broad dorsal expression	broad dorsal expression, lateral
<i>sema3b</i>	Not tested	Not tested
<i>sema3bl</i>	Not tested	Not tested
<i>sema3c</i>	Not tested	Not tested
<i>sema3d</i>	Along the dorsal ventral axis, strong ventral and medial expression	undetected
<i>sema3e</i>	medial, ventral	undetected
<i>sema3fa</i>	anterior, spans dorsal and ventral bulb	undetected
<i>sema3fb</i>	dorsomedial	dorsomedial
<i>sema3ga</i>	lateral	dorsal
<i>sema3gb</i>	Not tested	Not tested
<i>sema3h</i>	throughout the bulb	throughout the bulb