

Supplemental Information

Supplemental Fig.1. *dbx1a*, *her4.2*, *nxph1*, *hes5* and *plxnd1* relative expression values (Efficiency based method; Pfaffl, 2001) were plotted in a 3D graph for both groups (WT sib and *mib* mutants). Note a co-variation pattern of expression of these genes; in this example, when *dbx1a* was plotted against *her4.2* and *nxph1* its expression decreased (represented by green color) simultaneously with the increase of *her4.2* and *nxph1* expression (red color) in the 3 dpf WT siblings (A). In *mib* mutants, we observe an opposite pattern, *dbx1a* expression increases (red) with down-regulation of *her4.2* and *nxph1* (green) (B). A similar pattern is shown when *dbx1a* was plotted against *hes5* and *plxnd1* in WT sib (C) and *mib* mutants (D); *dbx1a* is inversely correlated with *Hes5*. Abbreviations: *dbx1a*, developing brain homeobox 1a; *her4.2*, hairy-related 4.2; *hes5*, hairy and enhancer of split 5; *nxph1*, neurexophilin 1 and *plxnd1*, plexin D1.

Supplemental Table 1. Pearson correlation coefficients are summarized in this table. The highest correlation coefficients >0.70 or < -0.70 significant at the 0.01 level are indicated by two asterisks and the correlation coefficients < 0.7 or >-0.7 significant at the 0.05 level are indicated by one asterisk.

Supplemental Table 2. Primer's sequences, GeneBank accession number and amplicon size for the investigated genes in conventional RT-PCR; primers indicated by asterisks were also used in preparing the probes for In Situ Hybridization DNA (template preparation using PCR amplification).

Supplemental Table 3. Real-time qPCR primer sequences and amplicon sizes for the SybrGreen assays.

Supplemental Table 4. qPCR efficiencies for all the gene of interest, slope of the curves, intercept and the correlation coefficient were estimated using the equation $E=10[-1/\text{slope}]$ (qCalculator software). Cycle threshold (CT) values were obtained by the standards serial dilutions assayed in triplicate (4-fold serial dilution).