

## **Description of Additional Supplementary Files**

### **Supplementary Data 1: Complete scoring table for the RNAi screen**

Virgin Females from tester line with genotype "UAS-Dicer2; 72A10-LexA, 13xLex0- 6xmCherry::HA/CyO ; 72A10-Gal4/TM6b" are crossed with males of all "UAS-RNAi" genotypes listed in the table. Crosses are done at 29°C and at least 20 adults (half males half females) from F1 dissected and scored according to H-neurons projections. Statistical analysis is conducted on the "Simple scoring" contingency table with Pearson's Chi-squared test and Benjamini & Yekutieli multiple comparisons correction. "Gene role" in the table is defined as their annotation in <sup>38</sup> and <sup>39</sup> : ML=midline crossing; MA = motor axon guidance; B = both.

### **Supplementary Data 2: List of genetic crosses and genotypes analyzed.**

List of all genetic crosses and genotypes analyzed in the present study.

### **Supplementary Data 3: List of statistical tests and p-Values**

List of all statistical tests and p-values for all manuscript's figures and tables.