



**Supplemental Figure 1. Schematic of fly taste anatomy and expression of *E409-Gal4* in the central nervous system.** Left panel. In the periphery, gustatory neurons are found on taste neurons of the proboscis labellum. They project to the subesophageal ganglion of the fly brain. Sugar-sensing neurons express Gr5a and their projections are ipsilateral in the SOG. Bitter sensing neurons express GFP and they project in a ringed web. Fig. 1a is of the proboscis labellum; Fig. 1bc is of the SOG. This schematic is adapted from ref. 8. Right panel. The E409 enhancer trap line labels neurons in the central nervous system, including the mushroom bodies, and the fan shaped body. A whole mount fly head of *E409-Gal4, UAS-CD8-GFP* flies, stained with anti-GFP immunohistochemistry. Scale bar is 100  $\mu\text{m}$ .