Supplementary Figure 1. In Or67d-Gal4 flies, Gal4 is expressed ectopically in ab5A ORNs.

Two independent Or67d-Gal4 lines label ORN projections in both the DA1 and VA6 glomeruli\textsuperscript{15,16}. This could be the result of either the Or67d-expressing ORNs unexpectedly projecting to both glomeruli, or of ectopic Gal4 expression in the only ORNs that are currently known to project to VA6 (the ab5A ORNs). The ab5A ORNs do not express Or67d\textsuperscript{15,16}. If Or67d-Gal4 drives ectopic expression of Gal4 in the ab5A ORNs, then we would predict that driving UAS-DTl with Or67d-Gal4 would kill the ab5A ORNs. However, if the explanation is that Or67d-expressing ORNs project to both DA1 and VA6, then we would predict that driving expression of UAS-DTl with Or67d-Gal4 would not have any effect on the ab5A ORNs. We drove diphtheria toxin expression using both of these Gal4 lines (Or67d-Gal4;UAS-DTl) and recorded from ab5 sensilla, which house both the ab5A ORNs and another ORN type (ab5B). Of this pair, the ab5A ORN always produces larger action potentials and responds strongly to geranyl acetate, whereas the “B” neuron responds strongly to 3-methylthio-1-propanol and pentyl acetate. In both lines, 5 of 5 ab5 sensilla we tested lacked the “A” ORN. We conclude that both Or67d-Gal4 lines ectopically express Gal4 in the ab5A ORNs. ORN recordings from Or67d-Gal4;UAS-DTl flies are shown on the left. Rasters (right) show that all the spikes are “B” spikes. Compare geranyl acetate responses to controls in Fig. 1d.