**SUPPLEMENTARY FILE 1**

**Supplemental Table 1: Complete genotypes and *n* for all experiments.**

Where only a subset of stimuli is plotted due to space constraints, bolded entries correspond to the stimuli represented in the figure. Solvent is paraffin oil.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FIGURE  | GeNOTYPE | EXPERIMENTAL GROUP | STIMULUS | No. FLIES (*N*) |
| 1C-D | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal | solventE2-hexenal, 10-7 | 11 |
| 2B-F2Q | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal exposed | solvent E2-hexenal, 10-12E2-hexenal, 10-11**E2-hexenal, 10-10****E2-hexenal, 10-9****E2-hexenal, 10-8****E2-hexenal, 10-7**E2-hexenal, 10-6E2-hexenal, 10-5 | 335**9****10****11****12**106 |
| solvent exposed | solvent E2-hexenal, 10-12E2-hexenal, 10-11**E2-hexenal, 10-10****E2-hexenal, 10-9****E2-hexenal, 10-8****E2-hexenal, 10-7**E2-hexenal, 10-6E2-hexenal, 10-5 | 333**8****7****19****19**149 |
| 2H-J2R3F | *NP3481-Gal4, UAS-CD8:GFP* (X) | 2-butanone exposed | 2-butanone, 10-8**2-butanone, 10-7****2-butanone, 10-6****2-butanone, 10-5****2-butanone, 10-4** | 4**11****12****13****12** |
| solvent exposed | 2-butanone, 10-8**2-butanone, 10-7****2-butanone, 10-6****2-butanone, 10-5****2-butanone, 10-4** | 6**16****13****14****11** |
| 2L-P2S | *UAS-CD8:GFP* (X)*; MZ612-Gal4, UAS-CD8:GFP* (II) | geranyl acetate exposed | geranyl acetate, 10-7geranyl acetate, 10-6geranyl acetate, 10-5geranyl acetate, 10-4 | 7998 |
| solvent exposed | geranyl acetate, 10-7geranyl acetate, 10-6geranyl acetate, 10-5geranyl acetate, 10-4 | 1011118 |
| 3B-E3G-H | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal exposed | 2-butanone, 10-72-butanone, 10-62-butanone, 10-52-butanone, 10-4 | 6875 |
| solvent exposed | 2-butanone, 10-72-butanone, 10-62-butanone, 10-52-butanone, 10-4 | 16131411 |
| 3J-N | *UAS-CD8:GFP* (X)*; MZ612-Gal4, UAS-CD8:GFP* (II) | E2-hexenal exposed | geranyl acetate, 10-7geranyl acetate, 10-6geranyl acetate, 10-5geranyl acetate, 10-4 | 5555 |
| solvent exposed | geranyl acetate, 10-7geranyl acetate, 10-6geranyl acetate, 10-5geranyl acetate, 10-4 | 1011118 |
| 4B-F | *UAS-CD8:GFP* (X)*; MZ612-Gal4, UAS-CD8:GFP* (II) | 20% geranyl acetate exposed | geranyl acetate, 10-7geranyl acetate, 10-6geranyl acetate, 10-5geranyl acetate, 10-4 | 5556 |
| solvent exposed | geranyl acetate, 10-7geranyl acetate, 10-6geranyl acetate, 10-5geranyl acetate, 10-4 | 5556 |
| 4H-L | *NP3481-Gal4, UAS-CD8:GFP* (X) | 20% geranyl acetate exposed | valeric acid, 5x10-4valeric acid, 10-3valeric acid, 5x10-3valeric acid, 10-2 | 6666 |
| solvent exposed | valeric acid, 5x10-4valeric acid, 10-3valeric acid, 5x10-3valeric acid, 10-2 | 6665 |
| 5B-C | *NP3481-Gal4, UAS-CD8:GFP* (X) | 2-butanone exposed | *pentyl acetate, 10-3*+2-butanone, 10-8+2-butanone, 10-7+2-butanone, 10-6+2-butanone, 10-5+2-butanone, 10-4 | 37676 |
| solvent exposed | *pentyl acetate, 10-3*+2-butanone, 10-8+2-butanone, 10-7+2-butanone, 10-6+2-butanone, 10-5+2-butanone, 10-4 | 66675 |
| 5E-F | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal exposed | *pentyl acetate, 10-3*+2-butanone, 10-8+2-butanone, 10-7+2-butanone, 10-6+2-butanone, 10-5+2-butanone, 10-4 | 33433 |
| solvent exposed | *pentyl acetate, 10-3*+2-butanone, 10-8+2-butanone, 10-7+2-butanone, 10-6+2-butanone, 10-5+2-butanone, 10-4 | 66675 |
| S5A | *+/UAS-brp.S-mStraw* (II)*; 20XUAS-CD8:GFP/NP3056-Gal4* (III) | solvent exposed | NA | 1 |
| S5BS5DS5FS5H |  *+/UAS-brp.S-mStraw* (II)*; 20XUAS-CD8:GFP/NP3056-Gal4* (III) | 2-butanone exposed | NA | 13 |
| solvent exposed | NA | 10 |
| S5CS5ES5GS5I | *+/UAS-brp.S-mStraw* (II)*; 20XUAS-CD8:GFP/NP3056-Gal4* (III) | E2-hexenal exposed | NA | 11 |
| solvent exposed | NA | 8 |
| 6B6C | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal exposed | solvent E2-hexenal, 10-12E2-hexenal, 10-11**E2-hexenal, 10-10****E2-hexenal, 10-9****E2-hexenal, 10-8****E2-hexenal, 10-7**E2-hexenal, 10-6E2-hexenal, 10-5E2-hexenal, 10-4 | 1211111010899910 |
| solvent exposed | solvent E2-hexenal, 10-12E2-hexenal, 10-11**E2-hexenal, 10-10****E2-hexenal, 10-9****E2-hexenal, 10-8****E2-hexenal, 10-7**E2-hexenal, 10-6E2-hexenal, 10-5E2-hexenal, 10-4 | 9998899766 |
| 6E6F | *NP3481-Gal4, UAS-CD8:GFP* (X) | 2-butanone exposed | solvent2-butanone, 10-102-butanone, 10-92-butanone, 10-8**2-butanone, 10-7****2-butanone, 10-6****2-butanone, 10-5****2-butanone, 10-4**2-butanone, 10-3 | 699910109109 |
| solvent exposed | solvent2-butanone, 10-102-butanone, 10-92-butanone, 10-8**2-butanone, 10-7****2-butanone, 10-6****2-butanone, 10-5****2-butanone, 10-4**2-butanone, 10-3 | 9111010109999 |
| 6H6I | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal exposed | solvent2-butanone, 10-102-butanone, 10-92-butanone, 10-8**2-butanone, 10-7****2-butanone, 10-6****2-butanone, 10-5****2-butanone, 10-4**2-butanone, 10-3 | 599999889 |
| solvent exposed | solvent2-butanone, 10-102-butanone, 10-92-butanone, 10-8**2-butanone, 10-7****2-butanone, 10-6****2-butanone, 10-5****2-butanone, 10-4**2-butanone, 10-3 | 9111010109999 |
| 6K | *+/Or7a-Gal4*(KI) (X)*;* +/*20XUAS-IVS-syn21-opGCaMP6f-p10* (II) | solvent exposed | E2-hexenal, 10-7 | 1 |
| 6L6M | *+/Or7a-Gal4*(KI) (X)*;* +/*20XUAS-IVS-syn21-opGCaMP6f-p10* (II) | E2-hexenal exposed | solvent E2-hexenal, 10-12E2-hexenal, 10-11**E2-hexenal, 10-10****E2-hexenal, 10-9****E2-hexenal, 10-8****E2-hexenal, 10-7**E2-hexenal, 10-6 | 86888878 |
| solvent exposed | solvent E2-hexenal, 10-12E2-hexenal, 10-11**E2-hexenal, 10-10****E2-hexenal, 10-9****E2-hexenal, 10-8****E2-hexenal, 10-7**E2-hexenal, 10-6 | 86888878 |
| 7B-C | *NP3481-Gal4, UAS-CD8:GFP* (X) | E2-hexenal exposed | NA | 4 |
| solvent exposed | NA | 4 |
| 7E | *NP3481-Gal4, UAS-CD8:GFP* (X)*;* +/*13xlexAop2-IVS-CsChrimson.mVenus* (II);+/*Or7a-lexA* (III) | solvent exposed | NA | 1 |
| 7F-G | *NP3481-Gal4, UAS-CD8:GFP* (X)*;* +/*13xlexAop2-IVS-CsChrimson.mVenus* (II);+/*Or7a-lexA* (III) | E2-hexenal exposed | NA | 5 |
| solvent exposed | NA | 7 |
| 7I-J | *UAS-CD8:GFP* (X)*; MZ612-Gal4, UAS-CD8:GFP* (II) | E2-hexenal exposed | solventpentyl acetate2-heptanoneE2-hexenalisobutyl acetate*p*-cresol2-butanone | 3333333 |
| solvent exposed | solventpentyl acetate2-heptanoneE2-hexenalisobutyl acetate*p*-cresol2-butanone | 3544443 |