

Figure 1. 9-ODA exposure increases Vg expression in drones, across multiple rearing regimes. A. *Vg* expression in callow-reared drones exposed to 9-ODA for three days. *Vg* expression was significantly higher in the 9-ODA exposed groups of Trial 1 (t(19)= - 1.94, p=0.0336) and Trial 3 (t(21)= -1.994, p=0.0296), but not in Trial 2 (t (14)= -0.049, p=0.4809). B. *Vg* expression in nurse-reared drones exposed to 9-ODA for three days. *Vg* expression was significantly higher in the 9-ODA exposed groups of Trial 2 ( t(13)= - 1.921, p=0.0385) and Trial 3 (t(22)= -1.766, p=0.0456), but not in Trial 1 (t(14)= 0.5405, p=0.7013). A trend for higher levels of *Vg* expression in the exposed groups was consistent throughout every trial. N=8-12 per treatment per trial.



Figure 2A. 9-ODA exposure delays the onset of flight in drones. Flying behavior begins on day 7 in both groups, with a significantly lower proportion of 9-ODA exposed drones flying on day 7 relative to control drones (Kaplan Meir Survival Analysis, Wilcoxon X2(1)= 8.959, p=0.0028). Data represents cumulative number of individuals flying across two combined trials. 10 control-exposed and 15 9-ODA-exposed drones were censored (did not take a single flight through the completion of the study). **B. 9-ODA exposed drones take significantly fewer flights**. In both trials, there was no significant difference in the average number of flights individuals took on day 7(T1 Wilcoxon Rank Sums X2 (1) = 0; T2 Wilcoxon Rank Sums X2 (1)= 0.7833, p=0.3761). However, on day 8, control drones took a significantly greater number of flights on average (T1 Welch’s ANOVA F1,74= 14.99, p=0.0002; T2 Wilcoxon Rank Sums X2 (1)= 7.638, p=0.0057).



Figure 3. Drone long-range (A,C) and short-range (B,D) responses to lures impregnated with a solvent control and natural drone mandibular gland extracts (A,B; N=7) or a synthetic blend (C,D; N=7) of the six major components of the drone mandibular gland. Long-range recruitment of drones by the natural extract was significantly greater than by the solvent control (3A, Wilcoxon Rank Sums X2(1)= 7.264, p=0.007 ) and short-range responses did not differ (3B, Wilcoxon Rank Sums X2(1)=0.935, p=0.334). Long- (3C, Wilcoxon Rank Sums X2(1)=9.91, p=0.0016) and short-range responses (3D, Wilcoxon Rank Sums X2(1)= 5.65, p=0.0175) of drones to the synthetic blend was significantly greater than by the solvent control.