Supporting Information

Masek and Scott 10.1073/pnas.1009318107

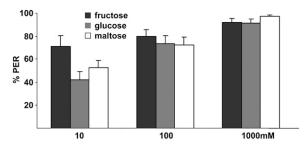


Fig. S1. Innate preference of different sugars is similar. The PER was monitored to 10-, 100-, and 1000-mM concentrations of fructose, glucose, and maltose. In this single-choice assay, the responses to different sugars are not statistically different (Student's *t* test), except for 10 mM fructose (P < 0.05). Data are mean \pm SEM (n = 9-12 experiments, 5 flies per experiment).

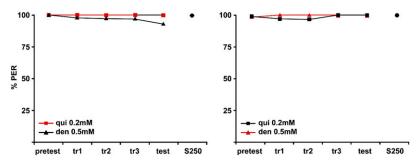


Fig. 52. Probability of proboscis extension does not decrease to bitter compounds in the absence of laser punishment. The taste associative learning paradigm was performed without laser punishment. Quinine (qui, 0.2 mM) and denatonium (den, 0.5 mM) were applied sequentially. Neither compound was associated with laser treatment. The PER response did not decrease over the course of the experiment in the presence of bitter compounds. Data are mean \pm SEM (n = 3 experiments, 5 flies per experiment).

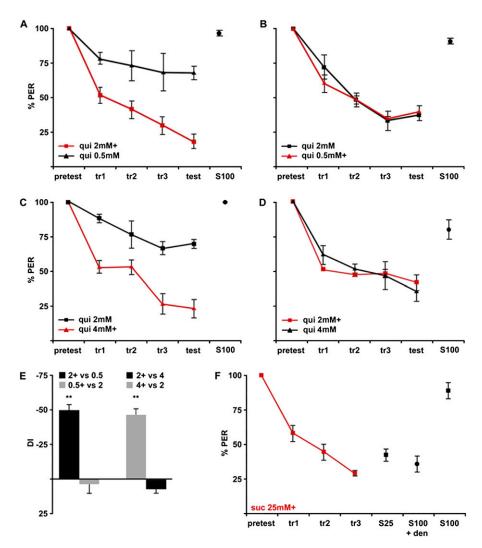


Fig. S3. Concentration-dependent discrimination of bitter compounds. Flies showed selective aversion when 2 mM quinine (qui) was punished (*A*) and generalized aversion when 0.5 mM quinine was punished (*B*). (*C*) Flies reduced responses to 4 mM quinine paired with heat but still extended to 2 mM. (*D*) When 2 mM quinine was paired with heat, flies avoided both 2 and 4 mM quinine (n = 3-6 experiments, 5 flies per experiment). (*E*) DI plots for experiments in A-D [**P < 0.01, Student's t test (one population)]. (*F*) Sucrose (25 mM) was paired with laser for three training blocks, and 25 mM (S25), 100 plus 0.5 mM denatonium (S100 + den), and 100 mM (S100) sucrose were tested after training. S25 and S100 + den responses are not statistically different; S100 is different from S25 and S100 + den [P < 0.05, Student's t test (two populations)].

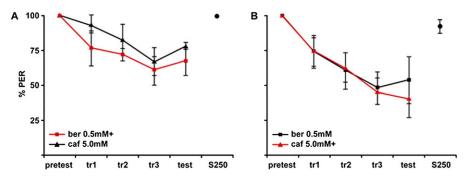


Fig. S4. At concentrations of equivalent preference, flies show reduced responses to caffeine (caf) and berberine (ber). Flies show reduced extension to 0.5 mM berberine and 5 mM caffeine regardless of which compound was punished (n = 4 experiments, 5 flies per experiment).

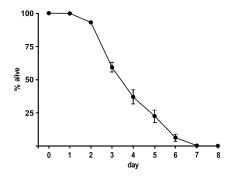


Fig. S5. Canton-S flies show reduced survival on long starvation periods. Canton-S flies were placed in vials with water but no food, were transferred to fresh vials daily, and the number of survivors over time was determined. Data are mean \pm SEM (n = 4-10 experiments, 50–100 flies per experiment).