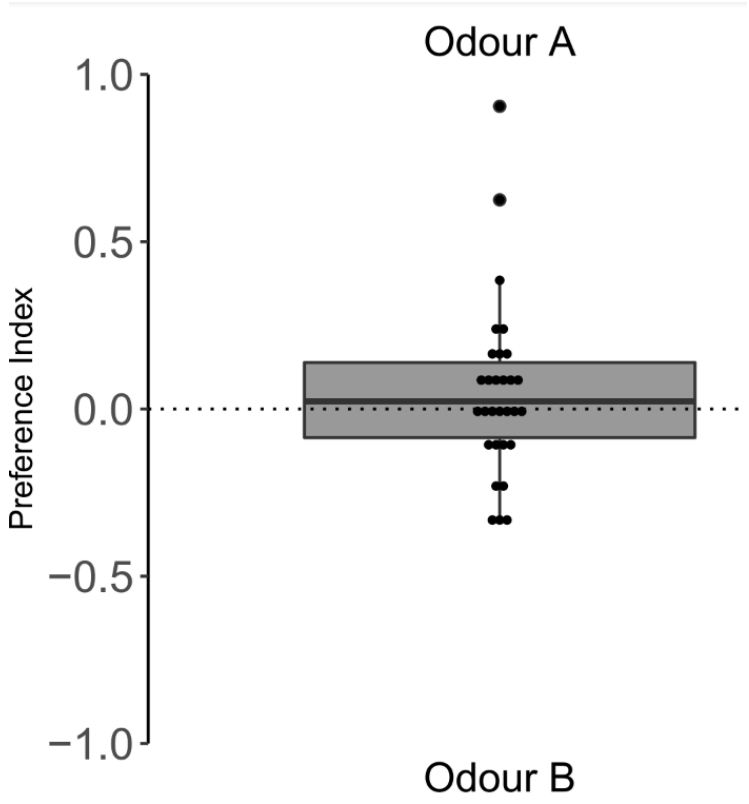

Fig. S1. The preference index of untrained ants for odour mixture A over odour mixture B when presented on glass slides. The odour mixtures were later used as rewarded stimulus (CS+) and unrewarded stimulus (CS0) in the learning experiments. Both odour mixtures contained equal proportions of three n-alkanes (odour A: n-C18, n-C21, and n-C27; odour B: n-C20, n-C22, n-C25), and the ants did not prefer either (n = 30, wilcoxon test V = 253, p = 0.69).

Table S1. The number of ants that entered the learning trials, and the sample size of the following retention tests after removing ants that did not find the sugar solution during at least two learning trials, or died before the second retention test.

Experiment	Treatment	Sample Size	Sample Size – Adjusted
Application	DMF – Control	76	76
	Epinastine 20mM	45	45
	Epinastine 100mM	29	29
	Flupentixol 250mM	32	30
Feeding	Untreated – Control	30	30
	Epinastine 1-3 Hours	30	27
	Epinastine 5-8 Hours	29	29
	Epinastine 17-26 Hours	27	25
	Flupentixol 1-3 Hours	28	26
	Flupentixol 5-8 Hours	25	21

Table S2. MCMCglmm on preference indices during retention tests of ants fed with receptor blockers. The table contnains the results of two independent models for day 1 and day 2. Each model contained colony ID and ant ID as random factors. For each factor level we report the effect (mean of the posterior distribution, i.e. the effect size of treatment compared to the control, measured in PI units), the limits of its 95% confidence interval (CI), the effective sample size as a measure of model convergence, and the p value derived from ther posterior distribution.

Response Variable	Treatment	Effect	Lower 95% CI	Upper 95% CI	Effective Sample	p
Preference Index Day 1	Control PI	0.19	0.11	0.26	1205	< 0.001
	Epinastine 1-3 Hours	-0.02	-0.14	0.08	1000	0.656
	Epinastine 5-8 Hours	-0.10	-0.21	0.01	1000	0.058
	Epinastine 17-26 Hours	-0.06	-0.18	0.05	1000	0.300
	Flupentixol 1-3 Hours	-0.10	-0.22	0.00	1000	0.070
	Flupentixol 5-8 Hours	-0.09	-0.20	0.03	1000	0.158
Preference Index Day 2	Control PI	0.08	0.02	0.15	1128	0.018
	Epinastine 1-3 Hours	-0.08	-0.17	0.02	985	0.102
	Epinastine 5-8 Hours	-0.00	-0.10	0.09	1000	0.962
	Epinastine 17-26 Hours	0.05	-0.05	0.14	1075	0.332
	Flupentixol 1-3 Hours	-0.01	-0.11	0.09	1000	0.852
	Flupentixol 5-8 Hours	-0.02	-0.12	0.08	1000	0.758

Table S3. MCMCglmm on preference indices during retention tests of ants that received a topical application of receptor blockers. The table contnains the results of two independent models for day 1 and day 2. Each model contained colony ID and ant ID as random factors. For each factor level we report the effect size (mean of the posterior distribution, i.e. the effect size of treatment compared to the control, measured in PI units), the limits of its 95% confidence interval (CI), the effective sample size as a measure of model convergence, and the p value derived from ther posterior distribution.

Response Variable	Treatment	Effect	Lower 95% CI	Upper 95% CI	Effective Sample	p
Preference Index Day 1	Control PI	0.23	0.15	0.29	1000	< 0.001
	Epinastine 20mM	-0.04	-0.15	0.07	1000	0.480
	Epinastine 100mM	-0.22	-0.34	-0.08	1000	0.002
	Flupentixol 250mM	-0.09	-0.22	0.04	1000	0.164
Preference Index Day 2	Control PI	0.33	0.26	0.39	1000	< 0.001
	Epinastine 20mM	-0.11	-0.20	-0.00	1562	0.032
	Epinastine 100mM	-0.42	-0.55	-0.31	1071	< 0.001
	Flupentixol 250mM	-0.24	-0.36	-0.13	1000	< 0.001

Table S4. glmm on the walking speed of ants in the retention tests after topical application of receptor blockers. The table contnains the results of two independent models for day 1 and day 2. Each model contained colony ID and ant ID as random factors. For each factor level we report the effect (mean of the posterior distribution, i.e. the effect size of treatment compared to the control, measured in mm/sec), the limits of its 95% confidence interval (CI), the effective sample size as a measure of model convergence, and the p value derived from ther posterior distribution.

Response Variable	Treatment	Effect	Lower 95% CI	Upper 95% CI	Effective Sample	p
Average Speed Day 1	Control PI	26.4	24.6	28.5	1000	< 0.001
	Epinastine 20mM	-4.4	-7.2	-1.3	902	0.002
	Epinastine 100mM	-6.0	-9.6	-2.5	409	0.001
	Flupentixol 250mM	-1.9	-5.3	1.5	784	0.294
Average Speed Day 2	Control PI	22.5	20.1	25.2	1000	< 0.001
	Epinastine 20mM	-0.6	-2.9	1.6	1000	0.624
	Epinastine 100mM	-2.9	-5.6	-0.4	895	0.030
	Flupentixol 250mM	-0.6	-3.4	2.2	1000	0.694

Supplementary Materials and Methods. (pdf) Code and output for the statistical analyses presented in the paper, as conducted in R.

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