

Supporting Information

Kim et al. 10.1073/pnas.1001425107

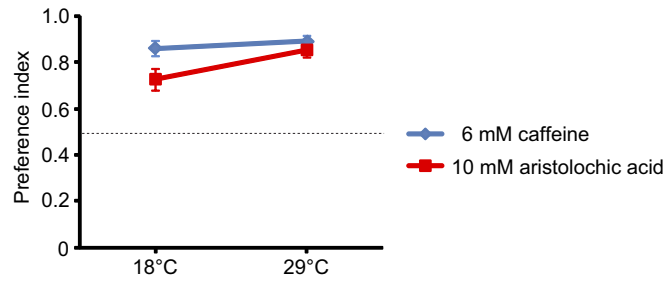


Fig. S1. Taste preferences for aristolochic acid and caffeine at 18 °C and 29 °C. Wild-type flies were allowed to select 1 mM sucrose alone vs. 5 mM sucrose with either 6 mM caffeine or 10 mM aristolochic acid. Binary food-choice assays were performed at 18 °C or 29 °C. P.I.'s for 6 mM caffeine: 18 °C, 0.86 ± 0.03; 29 °C, 0.89 ± 0.03. *P* value = 0.52. P.I.s for 10 mM aristolochic acid: 18 °C, 0.73 ± 0.05; 29 °C, 0.85 ± 0.03. *P* value = 0.10. *n* = 3 for all experiments.

Table S1. Statistics for the data shown in Fig. 2A

Compounds	Wild type	<i>trpA1</i> ¹
Sucrose		
P.I.	0.05 ± 0.00*	0.03 ± 0.01
<i>P</i> values		0.23
Caffeine		
P.I.	0.95 ± 0.01	0.94 ± 0.01
<i>P</i> values		0.79
Quinine		
P.I.	0.93 ± 0.02	0.97 ± 0.01
<i>P</i> values		0.075
Denatonium		
P.I.	0.96 ± 0.01	0.96 ± 0.01
<i>P</i> values		0.86
Berberine		
P.I.	0.91 ± 0.01	0.93 ± 0.01
<i>P</i> values		0.24
Lobeline		
P.I.	0.95 ± 0.01	0.95 ± 0.01
<i>P</i> values		0.73
Papaverine		
P.I.	0.92 ± 0.00 [†]	0.94 ± 0.01
<i>P</i> values		0.10
Strychnine		
P.I.	0.95 ± 0.01	0.97 ± 0.00 [‡]
<i>P</i> values		0.24
Aristolochic acid		
P.I.	0.80 ± 0.02	0.35 ± 0.02
<i>P</i> values		4.6 × 10 ⁻⁸

The preference indexes (P.I.s) are listed. *n* ≥ 4 (40–60 flies per experiment) for the behavioral assays. The *P* values are based on the unpaired Student's *t* test and are relative to wild type unless specified.

*0.004.

[†]0.003.

[‡]0.005.

Table S2. Statistics for the data shown in Fig. 2B

Genotype	P.I.	<i>P</i> values
Wild type	0.80 ± 0.02	
<i>trpA1</i> ¹	0.35 ± 0.02	4.6 × 10 ⁻⁸
<i>pyx</i> ^{ex}	0.74 ± 0.04	0.18
<i>wtrw</i> ^{ex}	0.80 ± 0.01	0.99
<i>pain</i> ¹	0.74 ± 0.03	0.15
<i>trp</i> ^{P343}	0.77 ± 0.04	0.53
<i>trp</i> ^{J302}	0.71 ± 0.04	0.071
<i>trp</i> ^γ ¹	0.73 ± 0.02	0.094
<i>iav</i> ¹	0.77 ± 0.04	0.50
<i>nan</i> ^{36a}	0.79 ± 0.05	0.79

The preference indexes (P.I.s) are listed. $n \geq 4$ (40–60 flies per experiment) for the behavioral assays. The *P* values are based on the unpaired Student's *t* test and are relative to wild type unless specified.

Table S3. Statistics for the data shown in Fig. 2C

Genotype	Wild type	<i>trpA1</i> ¹	<i>trpA1</i> ^{GAL4}	<i>trpA1</i> ^{ins}
P.I.	0.80 ± 0.02	0.35 ± 0.02	0.31 ± 0.03	0.34 ± 0.05
<i>P</i> values		4.6 × 10 ⁻⁸	1.86 × 10 ⁻⁷	2.5 × 10 ⁻⁴

The preference indexes (P.I.s) are listed. $n \geq 4$ (40–60 flies per experiment) for the behavioral assays. The *P* values are based on the unpaired Student's *t* test and are relative to wild type unless specified.

Table S4. Statistics for the data shown in Fig. 2D

Genotype	P.I.	<i>P</i> values	<i>P</i> values*	<i>P</i> values [†]
Wild type	0.80 ± 0.02			
<i>UAS-trpA1;trpA1</i> ¹	0.36 ± 0.02	3.5 × 10 ⁻⁷	6.0 × 10 ⁻⁹	3.4 × 10 ⁻⁵
<i>trpA1</i> ^{GAL4}	0.31 ± 0.03	1.9 × 10 ⁻⁷	2.5 × 10 ⁻⁵	
<i>UAS-trpA1;trpA1</i> ^{GAL4}	0.72 ± 0.02	0.056		
<i>Gr66a-Gal4;trpA1</i> ¹	0.32 ± 0.03	7.0 × 10 ⁻⁶		3.6 × 10 ⁻⁵
<i>Gr66a-Gal4, UAS-trpA1;trpA1</i> ¹	0.67 ± 0.03	0.010		

The preference indexes (P.I.s) are listed. $n \geq 4$ (40–60 flies per experiment) for the behavioral assays. The *P* values are based on the unpaired Student's *t* test and are relative to wild type unless specified.

*Relative to *UAS-trpA1;trpA1*^{GAL4}.

[†]Relative to *Gr66a-Gal4, UAS-trpA1;trpA1*¹.

Table S5. Statistics for the data shown in Fig. 3A

Compounds	Wild type	<i>trpA1</i> ¹
Sucrose		
Spikes/0.5 sec	18.71 ± 2.06	15.14 ± 1.74
<i>P</i> values		0.21
Caffeine		
Spikes/0.5 sec	10.29 ± 1.09	9.57 ± 2.56
<i>P</i> values		0.79
Quinine		
Spikes/0.5 sec	7.43 ± 1.69	10.71 ± 1.06
<i>P</i> values		0.13
Denatonium		
Spikes/0.5 sec	11.86 ± 1.64	11.14 ± 3.54
<i>P</i> values		0.86
Berberine		
Spikes/0.5 sec	13.86 ± 2.24	12.13 ± 1.61
<i>P</i> values		0.53
Lobeline		
Spikes/0.5 sec	11.00 ± 1.40	12.22 ± 0.97
<i>P</i> values		0.48
Papaverine		
Spikes/0.5 sec	11.25 ± 1.30	8.33 ± 1.35
<i>P</i> values		0.14
Strychnine		
Spikes/0.5 sec	5.75 ± 1.24	4.00 ± 1.31
<i>P</i> values		0.35
Aristolochic acid		
Spikes/0.5 sec	7.69 ± 1.79	0.22 ± 0.22
<i>P</i> values		0.51 × 10 ⁻²

The spike frequencies (±SEMs) are listed. $n \geq 7$ for the tip recordings. The *P* values are based on the unpaired Student's *t* test and are relative to wild type unless specified.

Table S6. Statistics for the data shown in Fig. 3C

Genotype	Spikes/0.5 sec	<i>P</i> values	<i>P</i> values*
Wild type	7.69 ± 1.79		
<i>trpA1</i> ¹	0.22 ± 0.22	5.1 × 10 ⁻³	
<i>trpA1</i> ^{ins}	1.25 ± 0.67	2.1 × 10 ⁻²	
<i>trpA1</i> ^{GAL4}	0.67 ± 0.67	8.9 × 10 ⁻³	
<i>UAS-trpA1;trpA1</i> ^{GAL4}	10.86 ± 3.68	0.39	5.3 × 10 ⁻³
<i>Gr66a-GAL4,UAS-trpA1;trpA1</i> ¹	6.20 ± 0.85	0.47	2.2 × 10 ⁻⁵

The spike frequencies (±SEMs) are listed. $n \geq 7$ for the tip recordings. The *P* values are based on the unpaired Student's *t* test and are relative to wild type unless specified.

*Relative to *trpA1*¹.

