

Supplementary information

Fast odour dynamics are encoded in the olfactory system and guide behaviour

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Supplementary Table 1: Parameters of the olfactory sensory neuron population model

Parameter	Description	Value
τ_C	Olfactory transduction time constant	75 ms
τ_V	OSN membrane time constant	75 ms
σ	Standard deviation of OSN membrane voltage additive noise	0.25 V
a	Stimulus amplitude	15 V
θ	OSN spike threshold	2 V
t_{ref}	OSN refractory period	1 sec
V_{ref}	OSN refractory voltage	-1 V
τ_h	Ca ²⁺ imaging filter time constant	150 ms
Δt	Euler integration step size	1 ms

Supplementary Table 2: Parameters of the olfactory sensory neuron population model that were varied

Parameter	Centre	Minimum	Maximum
τ_V	75 ms	56.25 ms	93.75 ms
τ_C	75 ms	56.26 ms	93.75 ms
σ	0.25 V	0.1875 V	0.3125 V
θ	2 V	1.5 V	2.5 V
a	5	3.75 V	6.25 V