
Spatially clustered neurons in the bat midbrain encode vocalization categories

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	Bat 1	Bat 2	Bat 3	Sum
Hemisphere	LIC	RIC, LIC	RIC	2 LIC, 2 RIC
Number of sites	8	5, 3	4	20
Tonotopy best fit angle	80	30,20	60	47.5
Tonotopy octave/mm	1.1	2.1, 3.5	1.5	2.1

Table S1. Tonotopic gradient angle estimation

Vocalization acoustic feature	Feature range (Δ)	Decoding accuracy (%)			p-value		
		Within Social	Within Navigation	Across bat calls	Within Within	Within Across	Within Across
Start frequency (kHz)	0-5	65.8	59.8	68	0.1653	0.7380	0.0044
Peak frequency (kHz)	0-5	66.3	61.6	67.9	0.2893	0.5476	0.0028
End frequency (KHz)	0-5	59.8	61.5	64.7	0.6446	0.0423	0.2181
Bandwidth (oct.)	0-0.1	69	60.5	67.8	0.0521	0.9311	0.0369
Duration (ms)	0-3	71.7	62.4	71.1	<10⁻⁴	0.9659	0.0001
Slope (oct./ms)	0.04	69.5	62.8	81.9	0.0030	0.0242	<10⁻⁴

Table S2. Summary table decoding accuracy per group as a function of acoustic features difference. The reported p-values correspond to the best fit of a linear regression between a feature and decoding accuracy.

	Sound evoked-response (Fig. 1e,f)	Tonotopy estimation (Fig. 2, Fig. S3)	Social - navigation selectivity (Fig. 3d,e, Fig. S4)	Population decoding (Fig. 3f-h, Fig. S6, Table S2)	Population decoding supplement (Fig. S7a,b)	Stimulus reversal (Fig. S7c,d)	Low-level auditory features (Fig. 3i-l)	Morphing analysis (Fig. 4, Fig. S10)	Spatial distribution (Fig. 5, Fig. S9)
Bat number	3 (b1-3)	3 (b1-3)	3 (b1-3)	3 (b1-3)	2 (b4,5)	2 (b4,5)	3 (b1-3)	2 (b4,5)	3 (b1-3)
Cell number	7868	7868	5860	5860	1575	1575	5860	1575	5860

Table S3. Number of animals and cells per analysis and corresponding figure