So close, rats can almost taste it

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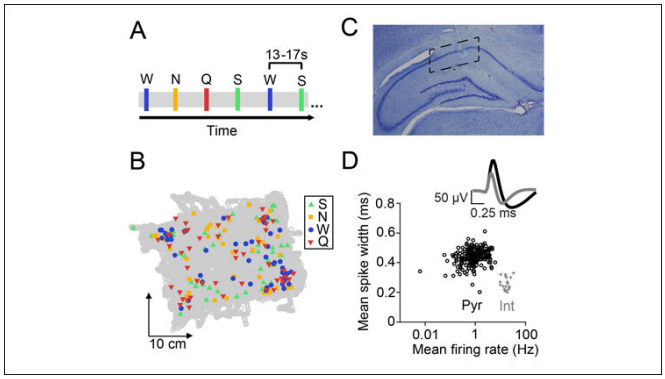

A, A portion of the timeline of an example taste delivery experiment. Colored bars indicate900 individual deliveries of taste stimuli: green (S, 4 mM saccharin), yellow (N, 100 mM sodium chloride), blue (W, distilled water) and red (Q, 5 mM quinine hydrochloride). Taste deliveries occurred at a randomized timing of 13-17 s, with the taste identity randomized for each trial. B, Example session showing all 200 taste delivery locations (colored symbols) overlaid on top of the rat's position in the behavioral chamber (gray circles) during one recording experiment. C, Histological verification of tetrode locations in intermediate dorsal CA1. Dotted lines indicate the extent of recording sites across all five animals. D, Classification of putative interneurons (Int, gray crosses) from pyramidal cells (Pyr, black circles) based on spike width (> 8.5 Hz) and firing rate (et al., *JNeurosci* (2019)

A subset of neurons in the hippocampus respond to both place and taste, according to research in male rats published in *JNeurosci*. The study shows how animals may remember and find their way back to locations where they previously found nourishment.

Although the hippocampus is connected to parts of the brain's taste system and active during taste discrimination tasks, its role in taste-processing has remained a mystery.

Shantanu Jadhav and Donald Katz, with graduate student Linnea Herzog and colleagues, randomly delivered four different tastes (sweet, salty, neutral, and bitter) to rats as they explored their environment. Recordings of individual hippocampal neurons revealed that about 20 percent of these cells were responsive to the palatability of taste stimuli. Of these, place cells responded to taste only in the location where the taste was delivered. These results suggest the hippocampus overlays existing mental maps with information about the reward and hazard derived from food found in particular locations.

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