Distinct Spatiotemporal Response Properties of Excitatory Versus Inhibitory Neurons in the Mouse Auditory Cortex

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In the auditory system, early neural stations such as brain stem are characterized by strict tonotopy. This organization is believed to play a role in deconstructing sounds to their basic frequencies. But recent evidence suggests that higher along the auditory hierarchy, as early as primary auditory cortex, strict tonotopy starts breaking down at local circuits.
Ido Maor (with co authors Ami Shalev and Adi Mizrahi) used two-photon targeted patch clamp to carefully map the response profiles of excitatory vs inhibitory neurons in the mouse auditory cortex. They found completely different maps for excitatory and inhibitory neurons. While excitatory maps were sparse and heterogeneous, the inhibitory maps were homogenous. These different maps that are intertwined within the same cortical circuit suggest unique roles for these cell types in the way the cortex encodes natural sounds.

Full article at: http://cercor.oxfordjournals.org/content/early/2016/09/02/cercor.bhw266.full.pdf

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