

Cortical layer-specific critical dynamics triggering perception

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Brain circuit visualization and manipulation

How are behaviorally relevant representations of the outside world initiated and manifested in the mammalian brain? Marshel *et al.* combined a channelrhodopsin with an improved holographic stimulation technique to examine activity in the mouse visual cortex, including its deep layers. Optogenetic stimulation of neurons previously activated by natural visual stimuli recreated the original activity and behavior. Neuronal population activity typically propagated from cortical layer 2/3 to layer 5 rather than in the reverse direction. Stimulation of a larger number of cells was required to initiate activity in layer 2/3 than in layer 5. This indicates differences in ensemble coding between the two layers.

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