Old area in the brain turns out to be more important for vision than expected

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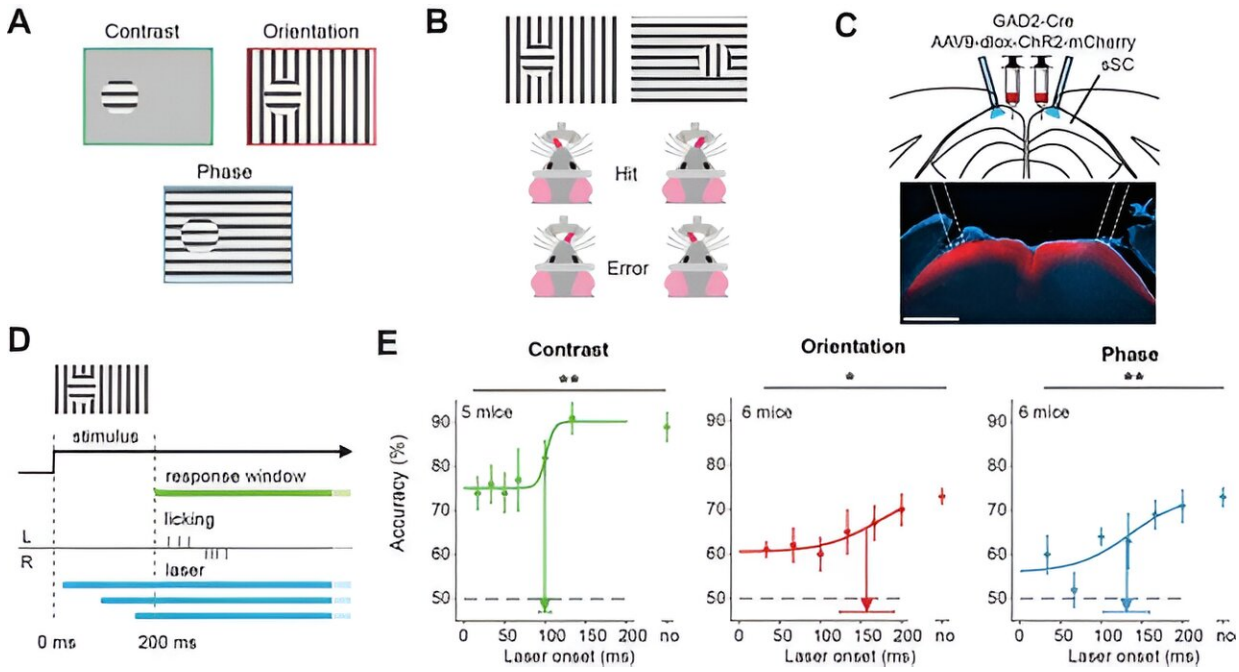

Superior colliculus is involved in figure detection. (A) The stimulus types that were used for the figure detection task. The stimulus consisted of a static grating that differed from the background in either contrast (top left), orientation (top right), or phase (bottom). (B) Two example stimuli (both orientation task). Licking on the side corresponding to the figure constituted a hit, a lick on the other side an error. (C) Top: Schematic illustration of viral injections and optic fiber implantation. Bottom: histological verification of viral expression. Red: ChR2-mCherry. Blue: DAPI. Scale bar is 600 μm.(D) Timing of the task. We optogenetically inhibited activity in superficial layers of the SC (sSC) by activating sSC GABAergic neurons in both hemispheres at different delays after stimulus appearance. The mice reported the figure location after 200 ms by

licking on the same side as the figure. (E) Inhibition of sSC significantly decreased task performance for each figure detection task. Accuracy is defined as hits/(hits + errors). The accuracy on unperturbed trials without the laser condition is indicated by 'no.' Colored dots represent means ± SEM of accuracies across mice. Arrow and error bar indicate mean ± SD of bootstrapped fitted inflection points. Dashed line indicates chance level performance. *p