

Confidence Representations across Modalities in Orbitofrontal Cortex

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Presentation Abstract Summary Assigning appropriate levels of confidence to decisions based on sensory evidence from different modalities is essential to perform adaptive behaviors in complex environments. Previously neural correlates of decision confidence have been found in the orbitofrontal cortex (OFC) in an olfactory decision task and OFC inactivation was shown to diminish the ability for confidence reporting in rats. If OFC computes a metacognitive signal it should do so irrespective of the modality used to make the decision. Here we set out to test this hypothesis by recording OFC neural activity during a dual-modality decision task. We present a model making predictions on how confidence should vary with stimulus difficulty and choice. We introduce a dual modality sensory discrimination task with post-decision time investment as the confidence report. We trained rats to perform olfactory and auditory discriminations in interleaved trials and show that their time investment into each decision follows the predictions of the decision confidence model. We recorded OFC neurons in rats performing this task and found similar post-decision confidence signals irrespective of sensory modality. Our results support the idea that OFC could be the seat of computation of a metacognitive confidence signal.

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