

Prefrontal Cortex for Decision Making

LEE Daeyeol

Johns Hopkins University

The primate prefrontal cortex has traditionally been associated with working memory, but more recent evidence has shown that it also plays a critical role in reinforcement learning and decision making. First, we found that the prefrontal cortex integrates multiple reward parameters and extracts value signals that can be used to make rational economic choices. Second, we identified signals related to hypothetical reward signals that can contribute to value signals through mental simulation based on model-based reinforcement learning. Third, we found that conjunctive signals related to previous experience and current sensory information are modulated according to the uncertainty of the environment. These results suggest that the prefrontal cortex is integral to adaptive decision making.