

Value computation in the human brain: its basis and contagious nature

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Abstract

There is accumulating evidence to suggest that the brain represents the expected value or utility of options at the time of decision-making. However, much less is known about how it is that value signals are constructed.

In the first part of my talk, I will discuss how valuations for food rewards are constructed in the brain. Using a food-based decision task combined with multivariate analysis of fMRI data, I will demonstrate that values of food items can be predicted from beliefs about constituent nutritive attributes of food, and that those attributes are represented in lateral orbitofrontal cortex (IOFC), suggesting a key role for IOFC in encoding the precursor representations subsequently used to compute integrated subjective values.

In the second part, I will present a study trying to explore the contagious nature of human valuation under risk. Using fMRI combined with computational modeling of behavioral data, I will show that human preference for risk can be systematically altered by the act of observing others' risk-related decisions. Furthermore, the contagious behavioral shift is implemented via a neural representation of risk in the caudate nucleus. These findings provide a mechanistic account for how observation of others' behavior can modulate an individual's own valuation.

Host: Hiro. Nakahara Lab for Integrated Theoretical Neuroscience