

P252 Hiroshi Tamura, Hidekazu Kaneko, Ichiro Fujita (Osaka Univ. Graduate School of Engineering Science, CREST · JST, National inst. of Bioscience and Human- Technology)

Pooling of activities of adjacent neurons reduces response variability

We examined effects of pooling of activities of multiple neurons in a local region of area TE of monkeys on the improvement of response reliability using a multi-neuron recording method. Adjacent TE neurons had a similar stimulus preference and trial-by-trial response variation was only weakly correlated between them. Pooling of activities of the simultaneously recorded cells decreased trial-by-trial response variation. The results suggest that neurons within a column in area TE can transmit information more reliably if there is a mechanism to pool the activities of constituent neurons.

P253 Hiroshi Tamura, Keisuke Kawasaki, Hidekazu Kaneko, Ichiro Fujita (Osaka Univ. Graduate School of Engineering Science, CREST · JST, National Inst. of Bioscience and Human-Technology )

Properties of inhibitory neurons in the inferior temporal cortex

We analyzed functional properties of inhibitory neurons in area TE of the monkey inferior temporal cortex. Inhibitory neurons were identified by detecting their inhibitory action on other neurons with cross-correlation analysis. Inhibitory neurons were as selective as non-inhibitory neurons. Some of the pairs with inhibitory interactions had lower similarity in stimulus preference than pairs without inhibitory interactions. Inhibitory neurons can thus suppress some of the excitatory inputs to other neurons that have a different stimulus preference, contributing to sharpening of stimulus selectivity in area TE.

P254 Masayuki Watanabe, Hiroki Tanaka, Takanori Uka, and Ichiro Fujita (Osaka Univ. Graduate School of Engineering Science, CREST · JST)

Binocular-disparity selectivity of V4 neurons in monkeys

We investigated whether V4 neurons process binocular disparity information. Among all recorded neurons, 76% responded to changes in stimulus disparity. Disparity-tuning curves were similar for different locations within a neuron's receptive field. Responses to monocularly presented stimuli could not fully account for binocular responses. These findings suggest that V4 neurons have binocular disparity selectivity.

P255 Quanxin Wang, Keisuke Kawasaki, and Ichiro Fujita (Osaka Univ. Graduate School of Engineering Science, CREST · JST)

Modular organization in area TEav and perirhinal cortex of monkeys

We investigated the projection patterns of intrinsic horizontal axons within area TEav and perirhinal cortex (area36) as well as the pattern of extrinsic, area-to-area, projections of these areas by making a small extracellular injection of an anterograde axon tracer. The results indicate that in both areas intrinsic and extrinsic projections produced patches of axonal terminals. The patches of intrinsic horizontal axons in both areas were similar to those in the immediately earlier area, TEad. The patch distribution of extrinsic connections was different between TEav and area 36. These results suggest that modular organization exists in TEav and area 36.