

VISUAL PROPERTIES OF INFERIOR TEMPORAL CORTEX IN THE MACAQUE.
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The inferior convexity of the temporal lobe of monkeys is known to play an important role in visual perception and memory. We have surveyed this region with both single-unit and multi-unit recordings. Within the area we term "inferior temporal cortex," corresponding to cytoarchitectonic area TE, we found the following properties: 1) Neurons are exclusively visual. 2) Receptive fields are very large (25x25 degrees), almost always include the center of gaze, and frequently cross the vertical midline of the visual field. 3) There is no systematic representation of the retina, i.e., the area is not retinotopically organized. 4) Neurons are usually not selective for the orientation, color, size or direction of movement of simple bars and edges. Rather, they either appear to be non-selective for visual stimulus properties, or have highly complex, multidimensional stimulus requirements.

The properties of neurons in inferior temporal cortex differ from those in the surrounding areas. Dorsal, anterior and ventral to inferior temporal cortex, neurons frequently respond to auditory and somesthetic stimuli in addition to visual. Furthermore, in the polysensory region dorsal to inferior temporal cortex, neurons are not selective for stimulus form, but are frequently selective for certain types of movement. Posterior to inferior temporal cortex, neurons are visual, but have smaller receptive fields and appear to be topographically organized. We propose that the properties of inferior temporal neurons may help explain its role in visual pattern recognition.