The laminar origin of the cortical inputs to the fourth visual complex of macaque monkey cortex

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We have studied the afferent and efferent connexions of the fourth visual complex of the monkey (Zeki, 1971, 1977) using prograde tracing methods (terminal degeneration, autoradiographic labelling) as well as retrograde reaction (horseradish peroxidase-HRP) techniques. Among other things, we wanted to learn whether the inputs to the fourth visual complex originate from the same layers in different cortical visual areas. All operations were performed under barbiturate anaesthesia.

The V4 complex receives inputs from several other visual areas. Prominent among these is V2. Cells of origin here lie in layers 2 and 3 and, after HRP injections, labelled cells often appear in clusters, the clustering being more prominent in some sections than in others. Another prominent input is from the infero-temporal cortex and parts of this cortex that send an input to the V4 complex receive a reciprocal input from it. Unlike the input from V2, however, both upper (2 & 3) and lower (5 & 6) layers project to the V4 complex while the reciprocal input from V4 is sandwiched between the two outputs, in layer 4. The input from V1 is from layer 2 and consists of scattered cells. We have also seen an input from the V3 complex, more prominent in some animals than in others. In one example, two neighbouring patches of labelled cells in V3A were found, with heavy labelling occurring in the upper layers in one patch and in the lower layers in the other. In one animal, there was an isolated patch of labelled cells, mainly in the upper layers, of the motion area (V5). Finally a few labelled cells were found in layer 5 of the part of the intraparietal sulcus which receives a prominent input from the V4 complex (Zeki, 1977).

This evidence shows that the input to the V4 complex from the different visual areas do not all originate from the same laminae. Even a single zone, such as the inferior temporal, may send fibres to it from both its upper and lower layers. It follows that determinants other than laminar origin govern the inputs to the V4 complex.

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REFERENCES


POSTER COMMUNICATIONS

Changes in the weight of the thymus in fasted rats

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During work on the effects of fasting on the weights of various organs of male Wistar rats we observed that the thymus lost a greater proportion of its weight than other