**Abstract View**

# LAYER IIIBβ (IVA) OF PRIMARY VISUAL CORTEX (V1) AND ITS RELATIONSHIP TO THE KONIOCELLULAR (K) PATHWAY IN MACAQUE MONKEYS

F.Yazar[1*]; J.A.Mavity-Hudson[1]; Y.Ding[2]; E.Oztas[3]; V.A.Casagrande[1]

*1. Dept. of Cell and Developmental Biol., Vanderbilt Med. Sch., Nashville, TN, USA*

*2. Dept. of Neurological Surgery, Wayne State Univ. Med. Sch., Detroit, MI, USA*

*3. Dept. of Embryology & Histology, Gulhane Military Med. Acad., Ankara, Turkey*

The heterogeneous physiology of K lateral geniculate nucleus (LGN) cells suggests that these cells are not part of a single pathway but carry multiple messages to cortex, including messages from S cones (Casagrande, 1994; Martin et al, 1997; Hendry & Reid, 2000). Recently it was shown that cells in layer IIIBβ (4A of Brodmann) of V1 receive input from the S cone pathway suggesting that K axons project to this layer (Chatterjee & Callaway, 2003) in addition to targeting layers IIIB and I (Casagrande et al.,1997). Since it has been proposed that IIIBβ receives input from parvocellular (P) LGN axons, our objective was to determine morphologically how many geniculocortical axon classes project to layer IIIBβ from the LGN. Under electrophysiological guidance, injections of either *Phaseolus vulgaris leucoagglutinin* (PHA-L) or biotinylated dextran amine (BDA) in two monkeys were centered in LGN layers K1 or K3 with some spread of label to the other LGN layers. Four different axon classes were identified in layer IIIBβ. One class had collaterals only within layer IVβ (IVCβ of Brodmann, the target of P LGN axons) and in layer IIIBβ suggesting this axon type may be a subclass of P axons. A second class terminated only within IIIBβ while the remaining classes sent collaterals also to layers above IIIBβ, including layer I. All four classes had a mean axon diameter significantly smaller than (but overlapping with) that of P axons. Taken together with previous results, these findings suggest that layer IIIBβ potentially integrates several messages from the LGN and appears to be another major V1 target of the K pathway.

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