

The Astrocytic Environment Differs among the Divisions of the Rat Striatum

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The current concept of the structure of the striatum is that it consists of a dorsolateral, sensorimotor, and a ventromedial, limbic part. This division is backed up by studies of the neuronal population of the striatum. In this investigation we aim to elucidate the morphological basis of the different striatal areas by studying their glial environment. For this purpose, we employed immunohistochemistry for GFAP for visualization of astrocytes, followed by image analysis for quantitative assessment of astroglia in different areas of the striatum. Our results show that the astroglial parameters in the dorsolateral division of the striatum are considerably greater than in the ventromedial one. This peculiarity of the glial environment hints towards the notion that astroglia is differentially regulated according to local characteristics of synaptic activity and density in different divisions of the striatum.

Key words: striatum, astrocytes, astroglia, GFAP