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ORIGINAL PAPERS

The Role of Astrocytes in Astrocytes Alzheimer's Disease

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Abstract
Astrocytes are highly specialized glial cells and play a crucial role in neuronal functionality and brain functional integrity. Although research on Alzheimer's disease has been concentrated mainly on the role of neurons, increasing evidence comes to light marking the important role of astrocytes in the pathophysiology of Alzheimer's disease. Astrocytes undergo certain morphological changes in Alzheimer's disease and they are thought to participate in Ab metabolism, and to mediate neurotoxicity and neuronal death through Calcium signaling.
Here we briefly present the morphological changes of astrocytes and their role in Alzheimer's disease neurodegeneration.

Keywords: Astrocytes, Alzheimer's disease, Ab clearance, calcium signaling.

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Introduction

Astrocytes are highly specialized and of heterogeneous morphological appearance glial cells that play a crucial role in the neuronal functionality and overall integrity of brain function. They can be distinguished based on their morphology and biochemical characteristics to protoplasmic ones which are located in the cerebral and spinal gray matter, and usually have 5-10 primary processes with extremely elaborate branches, to fibrous astrocytes, which are located in the white matter, and have long processes that parallel to neuronal axons, to radial glia, which are commonly seen in the developing brain and have an ovoid body with to antidiametric elongated processes, and after brain maturation are found only in the retina and the cerebellum, to velate astrocytes which are protoplasmatic astrocytes, located in the cerebellar molecular layer, to astrocytic neural stem cells which are found in the subventricular zone of the lateral ventricle and to pituicytes of the neurohypophysis [1].