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Astrocytes: The future in research of Alzheimer's disease

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Brain cells, such as astrocytes, neurons, ependimiary cells, microglia and oligodendroglia may play a role in Alzheimer's disease. The role of neurons has been studied for decades because of their role in cell communication inside the nervous system and also in damaged brain, such as in Alzheimer's disease. However, glial cells have been poorly studied. Astrocytes are more abundant than neurons in brain and, moreover there are more astrocytes compared to neurons, when we progress in the phylogeny. Furthermore Einstein's brain has three times more astrocytes than normal brain. So many scientists are thinking about the important role of astrocytes in memory, synapsis, brain communication, inflammation, oxidative stress, nutrition or sleep. Amyloid theory to explain Alzheimer's disease is now questioned. So we studied the role of astrocytes and demonstrated that after amyloid beta addition to astrocytes and neurons, astrocytes are more resistant to the toxic than neurons producing inflammation and oxidative stress but protected neurons in mixed culture. Using Transgenic APP/Presenilin 1 we have also demonstrated that astrocytes can be involved in changes in inflammation and oxidative stress detected in this mice. We conclude that these kind of cells are the key to protect brain against Alzheimer's disease. Perhaps we do not need to eliminate amyloid beta but only protect astrocytes against amyloid effects. Furthermore, which role play astrocytes in Alzheimer's disease and in CNS degeneration? That needs to be discussed in the future to elaborate new drugs to protect astrocytes or, on the other hand, to look for TAU protein and its relationship with astrocytes.

Biography

Soraya L Valles graduated in 1990 in Biological Science at the University of Valencia and remained there to undertake her PhD and She attained her PhD in 1997. In 1997, she started her postdoctoral position in England in Sheffield, UK and spent three years working in immunology, cytokines, inflammation processes. At Present, She is the chief of the neurochemistry laboratory at University of Valencia. She works in Alzheimer's diseases and in basic mechanisms in inflammation and oxidative stress. She had also worked in brain cancer with the finality to obtain anticancer proteins, as pharmaceutical drugs or natural drugs.

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