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Chemically Functionalized Water-Soluble Single-Walled Carbon Nanotubes Modulate Morpho-Functional Characteristics of Astrocytes

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Abstract

We report the use of chemically functionalized water-soluble single-walled carbon nanotubes (ws-SWCNTs) for the modulation of morpho-functional characteristics of astrocytes. When added to the culturing medium, ws-SWCNTs were able to make astrocytes larger and stellate/mature, changes associated with the increase in glial fibrillary acidic protein immunoreactivity. Thus, ws-SWCNTs, could have more beneficial effects at the injury site than previously thought; by affecting astrocytes, they could provide for a more comprehensive re-establishment of the brain computational power.

Keywords

Author Keywords: Carbon nanotubes; graft copolymers; astrocytes; glial fibrillary acidic protein

KeyWords Plus: GFAP-NULL MICE; NEURONAL GROWTH; GLUTAMATE; CELLS; INJURY; EXCITOTOXICITY; TRANSFECTION; EXPRESSION; RELEASE

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