Tau oligomers and fibrils induce activation of microglial cells

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Neuroinflammation is a process related to the onset of several neurodegenerative disorders, including Alzheimer's disease (AD). Increasing sets of evidence support the major role of deregulation of the interaction patterns between glial cells and neurons in the pathway toward neuronal degeneration, a process we are calling neuroimmunomodulation in AD. On the basis of the hypothesis that pathological tau aggregates induce microglial activation with the subsequent events of the neuroinflammatory cascade, we have studied the effects of tau oligomeric species and filamentous structures over microglial cells in vitro. Tau oligomers and fibrils were induced by arachidonic acid and then their actions assayed upon addition to microglial cells. We showed activation of the microglia, with significant morphological alterations as analyzed by immunofluorescence. The augmentation of nitrites and the proinflammatory cytokine IL-6 was evaluated in ELISA assays. Furthermore, conditioned media of stimu