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## Poster Presentation

### The Relationship between the TNF $\alpha$ of the Microglia Cells and the Alzheimer Disease

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#### **Abstract**

TNF $\alpha$  is one of the most important inflammatory cytokines which induces caspase and apoptotic process. There are two forms of TNF $\alpha$ : soluble TNF $\alpha$  (solTNF $\alpha$ ) and transmembrane TNF $\alpha$  (tmTNF $\alpha$ ). These inflammatory cytokines have two receptors namely TNFR1 and TNFR2. The attachments of the cytokines to those receptors induce the TRAF and activate the NK-Kb. TNFR1 is found in most of the cells and solTNF $\alpha$  and tmTNF $\alpha$  have the ability to attach to the TNFR1, but the TNFR2 is just found in the microglia and endothelial cells and reacts with the tmTNF $\alpha$ . Microglia is one of the smallest cells in the CNS which has the ability of phagocytosis and is one of the first cells which responds to the inflammations and exogenous factors. In general, there is a balance between the levels of the solTNF $\alpha$  and tmTNF $\alpha$ , but in the CNS disorders, in according to the damages in the neurons and disturbances in the cell conditions, that balance is interrupted and one of the cytokines is secreted more than normal level. One of the most important chronic neurodegenerative damages that is stimulated by TNF $\alpha$ , is Alzheimer disease. In the Alzheimer disease, activated microglia cells increase the levels of the TNF $\alpha$  which inclines the extracellular  $\beta$ -Amyloid, tau protein, intracellular neurofibrillary tangles and microgliosis that these changes lead to synaptic dysfunctions and neuronal destruction.

**Keywords:** TNF, CNS, Microglia, Alzheimer

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