

## **IMMUNE PROCESSES AND NEURODEGENERATIVE DISEASES**

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The brain is commonly considered as an immune privileged organ. Several features of the brain contribute to this such as blood-brain barrier, reduced MHC-expression on brain-resident cells, lack of lymphatic system inside of the brain, and immunoregulatory mechanisms by brain resident cells. Thereby the brain reduces the risk of accidental development of inflammation and possible accompanying tissue damage.

Immune processes in the CNS, however, are not only destructive, but have also a component that is neuroprotective. In numerous animal models an immune response contributed to repair and the concept of neuroprotective autoimmunity was developed. This neuroprotective autoimmunity is partially mediated by neurotrophic factors. Neurotrophic factors, which are produced by both brain resident cells and infiltrating immune cells, play an important role in repair, development and maintenance of the CNS.

Importantly, in immune processes and neurodegeneration not only invading cells of the adaptive immune system, but also brain resident cell participate. The complex interplay between invading immune cells and brain resident cells determines the outcome of pathological processes in the CNS. Microglia and also astrocytes are active players in CNS immune reactions.

This presentation will focus on the role of astrocytes and neurotrophins in immune processes and neurodegeneration.