

Adaptive Immunity

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Regulatory T-cells inhibit Borna Disease Virus induced immunopathology in the brain

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Borna disease is a virus-induced immune-mediated encephalitis of the central nervous system. CD8⁺ T-cells are the effector cells in this immunopathological process. During the late stage of disease CD8⁺ T-cells disappear even though the virus still persists in the central nervous system. The reason and the immunological mechanism for this event are unknown. We hypothesized that regulatory T-cells are involved in this process. We could show in BDV-infected rats, that there is a strong influx of T-cells into the brain. Additionally, the cytokine expression levels are altered and shown a proinflammatory surrounding for the first 3 weeks. Inhibition assays of leucocyte-proliferation demonstrate the great potential of BDV-induced Tregs in the spleen and brain. Therefore, we conclude that Tregs migrate into the brain and persist while effector T-cells retrench. The study demonstrates that the immune system develops specific protective mechanisms to avoid fatal immune responses.

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