

Educational Note

Antigen-specific autoreactive T cell responses targeting the central nervous system

Running title: Autoreactive T cells and central nervous system

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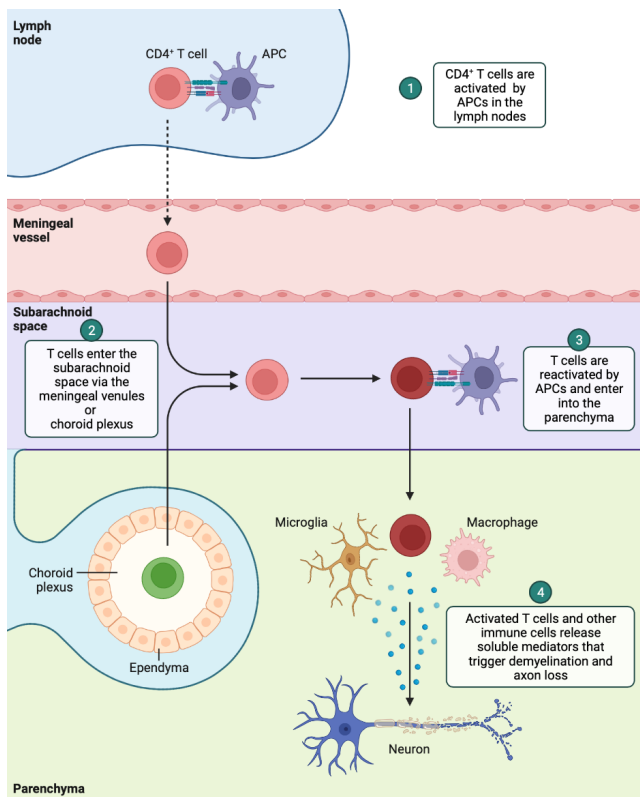


Fig. 1 Activation of antigen-specific autoreactive CD4⁺ T lymphocytes showing the possible paths of activated T cell entry. Based on a concise review by (1). CD4⁺ T cells are most likely primed in the periphery by professional antigen presenting cells (APC) i.e. dendritic cells (DCs), which present autoantigenic epitopes such as myelin or other disease-related epitopes (2). In turn, APCs residing in the central nervous system (CNS) can seize these autoantigens *in situ* and migrate them to the lymph nodes. Antigen-specific autoreactive CD4⁺ T cells cross the blood–cerebrospinal fluid (CSF) barrier and enter the subarachnoid space.

Those T cells are re-activated within the subarachnoid space by HLA class II-expressing macrophages and DCs expressing various autoepitopes enter the subarachnoid space in the choroid plexus. Reactivated T cells and their immune counterparts release soluble mediators and trigger a series of events damaging the myelin sheath, ultimately leading to demyelination (1-5) (prepared using a template by BioRender under a license to DPB).

References

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AUTHORS CONTRIBUTION

The authors prepared the manuscript and the artwork. The authors approved the final version of the manuscript.

CONFLICT OF INTEREST

The Authors declare no conflict of interest