**Table 1.** T cells subsets and their location and functions in the CNS in homeostasis.

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| --- | --- | --- | --- | --- | --- |
| T cell subtype | | Location | Cytokine signature | Function | Reference |
| CD4+ T cells | | Meninges, CP, CSF |  | Modulate the myeloid cells phenotype  Orchestrate inflammation environment in the brain  Modify neuronal activity  Produce neurotransmitters (ACh) | Mundt, Greter, Flugel & Becher, 2019; Piehl et al., 2022; Croese, Castellani & Schwartz, 2021; Norris & Kipnis, 2019 |
|  | **Treg** | Meninges, CP, CSF and perivascular spaces | IL-10 and TGFβ | Control IFNγ and tumor necrosis factor alpha (TNFα)  secretion by inactivating CNS immune cells  Moderate acute inflammation by secreting IL-10 | Iellem, 2001; Ito et al., 2019; Liesz et al., 2009 |
| **Th1** | Meninges, CP, CSF | IFNγ, IL-2, and TNFα. | Inhibition of cortical interneurons and  regulation of GABA production  Participate in social behaviour | Mundt, Greter, Flugel & Becher, 2019; Piehl et al., 2022; Croese, Castellani & Schwartz, 2021; Filiano et al., 2016 |
| **Th2** | Meninges, CP, CSF | IL-4, IL-5 and  IL-13 | Produce cytokines which activate microglia to induce neurogenesis and oligodendrogenesis in adult neural progenitor cells  Pivotal role in memory and learning | Mundt, Greter, Flugel & Becher, 2019; Arcuri, Mecca, Giambanco & Donato, 2019; Derecki et al., 2010 |
| **Th17** | Perivascular spaces and SAS | IL-17A, IL-17F and IL-22 | Initiation of inflammatory responses | Sallusto et al., 2012; Lee et al., 2022 |
| **Th22** | Perivascular spaces and SAS | IL-22 | Initiation of inflammatory responses | Sallusto et al., 2012; Lee et al., 2022 |
| γδ T cells | | After neuronal development, fetal γδ T cells persist in the meningeal spaces throughout life | IFNγ or IL-17 | Contribute to control synaptic plasticity in short-term memory  Induce brain-derived neurotrophic factor (BDNF)  secretion by glial cells | Alves de Lima et al., 2020; Ribeiro M, 2019 |
| CD8+ T cells | | Meninges, CP, CSF | Perforin and Granzyme B | Prevent the action of pathogens that invade the CNS | Mundt, Greter, Flugel & Becher, 2019; Piehl et al., 2022; Croese, Castellani & Schwartz, 2021 |