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Titel des Beitrags: CNS accumulation of regulatory B cells is VLA-4-dependent.

Abstract: To investigate the role of very late antigen-4 (VLA-4) on regulatory B cells (Breg) in CNS autoimmune disease. Experimental autoimmune encephalomyelitis (EAE) was induced in mice selectively deficient for VLA-4 on B cells (CD19cre/4(f/f)) by immunization with myelin oligodendrocyte glycoprotein (MOG) peptide (p)35-55 or recombinant human (rh) MOG protein. B-cell and T-cell populations were examined by flow cytometry and immunohistochemistry. Breg were evaluated by intracellular IL-10 staining of B cells and, secondly, by coexpression of CD1d and CD5. As previously reported, EAE was less severe in B-cell VLA-4-deficient vs control CD19cre mice when induced by rhMOG, a model that is B-cell-dependent and leads to efficient B-cell activation and antibody production. Paradoxically, B-cell VLA-4-deficient mice developed more severe clinical disease than control mice when EAE was induced with MOG p35-55, a B-cell-independent encephalitogen that does not efficiently activate B cells. Peripheral T-cell and humoral immune responses were not altered in B-cell VLA-4-deficient mice. In MOG p35-55-induced EAE, B-cell VLA-4 deficiency reduced CNS accumulation of B but not T cells. Breg were detected in the CNS of control mice with MOG p35-55-induced EAE. However, more severe EAE in B-cell VLA-4-deficient mice was associated
with virtual absence of CNS Breg. Our results demonstrate that CNS accumulation of Breg is VLA-4-dependent and suggest that Breg may contribute to regulation of CNS autoimmunity in situ. These observations underscore the need to choose the appropriate encephalitogen when studying how B cells contribute to pathogenesis or regulation of CNS autoimmunity.