Dokumenttyp: journal article

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Titel des Beitrags: MyD88 is required for mounting a robust host immune response to Streptococcus pneumoniae in the CNS.

Abstract: Myeloid differentiation factor 88 (MyD88) is an essential intracellular signal transducer in Toll-like receptor (TLR) and interleukin (IL)-1 receptor family member-mediated cell activation. In order to characterize the role of MyD88 in pneumococcal meningitis we used gene-targeted mice lacking functional MyD88 expression. At 24 h after intracisternal infection, MyD88-deficient mice displayed a markedly diminished inflammatory host response in the CNS, as evidenced by reduced CSF pleocytosis and expression of cytokines, chemokines and complement factors. The reduced CNS inflammation was paralleled by a marked reduction in the prognostic relevant CNS complications, such as brain oedema formation. Nevertheless, MyD88 deficiency was associated with a worsening of disease which seemed to be attributable to severe bacteraemia. This notion was supported by the unexpected observation that infected MyD88-deficient mice displayed enhanced mRNA expression of inflammatory mediators [such as the proinflammatory cytokinetumour necrosis factor alpha (TNF-alpha) and the CXC chemokine macrophage inflammatory protein (MIP-2)] in the lung and consequently increased cell influx in the bronchoalveolar lavage fluid, compared with infected wild-type mice. Thus, the present study demonstrated for the first time an
important role of MyD88 in immune activation to bacterial pathogens within the CNS. The role played
by MyD88 in mounting an immune response to Streptococcus pneumoniae, however, seems to be
dependent on the anatomical compartment involved.