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Measles virus infection of the central nervous system (CNS) of rats associated with autoimmune reactions against brain antigens  
U.G. Liebert, S. Schneider-Schaulies, G. Hashim and V. ter Meulen  
Institut für Virologie und Immunbiologie der Universität Würzburg  
Circumstantial evidence suggests that measles encephalitis in man may be the result of an immunopathological reaction against brain antigens. So far, the mechanisms by which measles virus induces these changes and causes an autoimmune disease are unknown. We have studied this aspect in an animal model utilizing Lewis and BN rats infected with measles virus. In both rat strains, an acute or subacute inflammatory CNS disease process developed which was accompanied in Lewis rats by a cell-mediated immune response to myelin basic protein or proteolytic protein. No such reaction was found in BN rats. T cell lines isolated from infected Lewis rats revealed a specificity for MBP and carried the helper phenotype. After adoptive transfer in naive syngeneic recipients these T cell lines proved to be encephalitogenic with a similar efficiency as T cell lines isolated from EAE rats. In proliferation assays the pattern of reactivity to various synthetic peptides of the encephalitogenic region of MBP was identical in all MBP-specific T cell lines derived from EAE or measles infected animals. No cross-reactivity to purified measles virus was detected. This model will provide the opportunity to characterize the mechanisms leading to virus induced autoimmunity.