

MOLECULAR BIOLOGICAL ANALYSES OF MEASLES VIRUS GENE EXPRESSION IN THE CNS OF ACUTELY AND PERSISTENTLY INFECTED RAT BRAIN CELLS

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In order to characterize parameters leading to the establishment and the maintenance of persistent measles virus (MV) CNS-infection we analysed viral gene expression in our animal model of MV-induced acute and subacute encephalomyelitis (AE, SAME and CSE) in Lewis and BN rats and in primary astrocyte cultures. The expression of the M, F and H proteins was found to be reduced in vivo and in vitro early in infection. Analysis of the corresponding mRNAs revealed that the synthesis of the F and H mRNA is restricted in brain tissue of Lewis and BN rats one week following infection and in primary astrocytes within 24 hours after infection. The synthesis of the M-protein is obviously restricted at the translational level since the corresponding mRNA is transcribed efficiently in all systems tested. Transcriptional restriction could be enhanced when measles virus specific neutralizing antibodies were given to infected rats or tissue culture shortly after infection.

These results indicate that persistence of MC in brain cells is accomplished by a restriction of viral gene expression on both transcriptional and translational level very soon after infection as a result of host factors.