EXPRESSION OF MAREK'S DISEASE VIRUS-SPECIFIC ANTIGENS AFTER TRANSIENT TRANSFECTION OF MSB-1 CELLS WITH THE MAREK'S DISEASE VIRUS HOMOLOGUE OF ICP4

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Lymphoblastoid cell line MSB-1 established from Marek's disease (MD) lymphomas expresses a limited number of MD virus (MDV) transcripts. The antisense transcripts of the MD homologue of major regulatory gene ICP4 of HSV (MDV ICP4) were predominantly expressed in MSB-1, whereas mRNA of the MDV ICP4 (sense transcript) was predominantly expressed in lytically infected cells. These transcripts could have a significant role in maintenance of latency and of the transformed state of MSB-1. The importance of sense and antisense transcripts for the regulation of early and late genes of MDV was examined in transiently transfected-MSB-1 cells. For the construction of transfection vectors, the entire open reading frame sequence was amplified and the amplified product was cloned into the eukaryotic expression vector pSVbeta. The resulting plasmids were assigned pSV-ICP4hS (cloned in the sense direction) and pSV-ICP4hA (cloned in the antisense direction). On Northern blot analysis, small amounts of sense and antisense endogenous MDV ICP4-specific transcripts (10.0 kb) were detected in untransfected MSB-1 cells. Dose-dependent expression of pSV-ICP4hS and pSV-ICP4hA specific transcripts (4.3 kb) was not observed. Northern blot analysis showed the increased levels of pp38-specific transcripts (1.9 and 3.3 kb) after transfection, while expression of thymidine kinase-specific and gB-specific transcripts was not observed throughout the experiment. Radioimmunoprecipitation analysis demonstrated that the expression of M21 monoclonal antibody-specific proteins (pp38 and pp24) was enhanced, while that of M29 monoclonal antibody-specific nuclear antigen (130 kDa) was not enhanced. These data suggest that the expression of MDV ICP4 has a significant role in the maintenance of the transformed state though it is inadequate for full reactivation.