Modified vaccinia virus Ankara exerts potent immune modulatory activities in a murine model.

BACKGROUND: Modified vaccinia virus Ankara (MVA), a highly attenuated strain of vaccinia virus, has been used as vaccine delivery vector in preclinical and clinical studies against infectious diseases and malignancies. Here, we investigated whether an MVA which does not encode any antigen (Ag) could be exploited as adjuvant per se.

METHODOLOGY/PRINCIPAL FINDINGS: We showed that dendritic cells infected in vitro with non-recombinant (nr) MVA expressed maturation and activation markers and were able to efficiently present exogenously pulsed Ag to T cells. In contrast to the dominant T helper (Th) 1 biased responses elicited against Ags produced by recombinant MVA vectors, the use of nrMVA as adjuvant for the co-administered soluble Ags resulted in a long lasting mixed Th1/Th2 responses.

CONCLUSIONS/SIGNIFICANCE: These findings open new ways to potentiate and modulate the immune responses to vaccine Ags depending on whether they are co-administered with MVA or encoded by recombinant viruses.