

Abstract:

The immunogenicities of candidate DNA- and modified vaccinia virus Ankara (MVA)-vectored human immunodeficiency virus (HIV) vaccines were evaluated on their own and in a prime-boost regimen in phase I clinical trials in healthy uninfected individuals in the United Kingdom. Given the current lack of approaches capable of inducing broad HIV-neutralizing antibodies, the pTHr.HIVA DNA and MVA.HIVA vaccines focus solely on the induction of cell-mediated immunity. The vaccines expressed a common immunogen, HIVA, which consists of consensus HIV-1 clade A Gag p24/p17 proteins fused to a string of clade A-derived epitopes recognized by cytotoxic T lymphocytes (CTLs). Volunteers' fresh peripheral blood mononuclear cells were tested for HIV-specific responses in a validated gamma interferon enzyme-linked immunospot (ELISPOT) assay using four overlapping peptide pools across the Gag domain and three pools of known CTL epitopes present in all of the HIVA protein. Both the DNA and the MVA vaccines alone and in a DNA prime-MVA boost combination were safe and induced HIV-specific responses in 14 out of 18, seven out of eight and eight out of nine volunteers, respectively. These results are very encouraging and justify further vaccine development.