PRIME-BOOST VACCINATION USING RECOMBINANT MYCOBACTERIUM BOVIS BCG AND RECOMBINANT VACCINIA VIRUS DIs HARBORING HIV-1 CRF01_AE GAG IN MICE: INFLUENCE OF IMMUNIZATION ROUTES

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Abstract. We have previously reported that live vector-based HIV-1 gag vaccine candidate using BCG as a vector was achievable in BALB/c mice. Although the gag-specific CTL induced by this live candidate vaccine is significantly high, persistence of CTL remains unclear. Thus, efforts were made to explore the potential of recombinant Vaccinia virus DIs strain harboring the same HIV-1 CRF01_AE gag gene (rVaccinia/HIV-1gagE) present in the BCG construct, using different immunization routes. After one month following a single subcutaneous (s.c.) injection of rBCG/HIV-1gagE, higher CTL responses were recognized against various peptide epitopes along the whole gag protein compared to that by intradermal (i.d.) route. A prime-boost regimen having only rDIs/HIV-1gagE injected i.d. induced very low CTL levels. However, within two months, by priming with rBCG/HIV-1gagE s.c. and boosting with rVaccinia/HIV-1gagE intravenously (i.v.), CTL levels were greater (20-68% specific cell lysis) than those obtained by priming and boosting both i.d. (18-35%). After seven months, both prime-boost immunization with rBCG/HIV-1gagE s.c. and with rVaccinia/HIV-1gagE either i.v. or i.d. sustained similar CTL levels. Our studies exhibit that the prime-boost vaccination of rBCG/HIV-1gagE following by rVaccinia/HIV-1gagE i.d. could be used to elicit prolonged CTL responses as well as memory T-cells in mice, which might be more practical than using i.v. route.

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