

Abstract

Background: DNA vaccines have typically been safe in clinical trials, but weakly immunogenic. Strategies to enhance their immunogenicity include i) co-administration of adjuvants and ii) intramuscular administration by in vivo electroporation (IM/EP).

Methods: Seventy five HIV-uninfected healthy adults were enrolled into a randomized, double blind, placebo controlled trial. Multi-antigenic HIV plasmid DNA (HIVMAG) vaccine encoding clade B gag-pol, env, nef-tat-vif(3 mg/dose), alone or

A-62 POSTER ABSTRACTS

co-administered with pDNA IL12 given IM/EP using TriGrid™ Delivery System, and recombinant Ad35 vaccine containing HIV-1 subtype A gag, RT, int, nef and gp140 env genes (Ad35-GRIN/ENV; 2 · 10¹⁰ vp) given IM were tested in different prime-boost regimens (M0,1,2 +M6 or M0+ M4). Group 1: HIVMAG (x3)-Ad35 (x1), Group 2: HIVMAG+ 100 ug IL12 (x3)- Ad35 (x1), Group 3: HIVMAG+ 1000 ug IL12 (x3)- Ad35(x1), Group 4: HIVMAG+ 1000 ug IL12 (x1)- Ad35 (x1), Group 5: Ad35 (x1)-HIVMAG+ 1000 ug IL12 (x1). All IM/EP vaccinations required bilateral administrations, one into each deltoid. Safety, tolerability and immunogenicity were assessed at predetermined time points.

Results: Both vaccines were safe and well-tolerated. All but one local and all systemic reactogenicity events were mild or moderate in severity. No SAEs were reported. Preliminary group unblinded IFN γ ELISPOT results show that 2 weeks post 3 rdDNA prime the proportions of volunteers in Groups 1–3 responding to any peptide were 82, 64 and 42% and 2 weeks post Ad35 boost 73, 82 and 89%, with corresponding increases in magnitude post boost. Response rates in Groups 4 and 5 were 50% and 46%, respectively, after last (second) vaccination. An average of 4 out of 12 peptide pools per vaccinee was recognized; further studies to assess epitope breadth and polyfunctionality are in progress.

Conclusion: Repeated administration of HIV MAG + / - IL12 by IM/EP was acceptable among African volunteers. Preliminary ELISPOT data showed that HIVMAG by IM/EP was immunogenic but currently there is no clear indication that pDNA IL12 enhanced the immune responses.