EV06 Trial: Modulation of the Immunogenicity of the DNA-HIV-PT123 and AIDSVAX®B/E combination HIV vaccine in adult Ugandans by S. mansoni Infection


The prevalence of S. mansoni (SM) in Sub Saharan Africa raises concerns on the worm's effects on the response to vaccines. We investigated the impact of SM infection on the humoral response to a novel DNA vaccine expressing Clade C Env, Gag and Polnef co-administered with AIDSVAX B/E.

This randomized double blind trial enrolled 72 male and female Ugandans aged 18-45, 36 infected with S. mansoni (SM+) and 36 uninfected (SM-). In each arm 30 received vaccine and 6 placebo at week 0, 4 and 24. Responses were evaluated at week 0, 6, 26 and 36.

Humoral responses were measured by binding and neutralization assays. IgG against a panel of HIV-1 envelope glycoproteins were measured by BAMA. Neutralizing antibodies (Nabs) were measured using TZM/bl cells and tier 1 pseudoviruses.

Significant differences in binding IgG response rates were observed against the vaccine matched clade C V1V2 (gp70-96ZM651.02 V1V2) at week 6: 56% among SM+ vaccinated participants compared to 86% among SM- vaccinated participants ($P = 0.039$). At week 36, response magnitudes were also statistically lower in the SM+ group against the clade C vaccine matched gp120 and gp140 proteins ($P = 0.04$ for both). Response rates between groups were tested using Fisher’s exact test and magnitudes using the Wilcoxon sum-rank test. Furthermore, vaccinated SM+ participants had: 1) significantly lower Nab response rates at week 36 for Clade C MW965.26 and Clade AETH023.6 ($P <0.05$); 2) significantly lower IC50 titers for MW965.26 and TH023.6 at both weeks 26 and 36; 3) and lower median AUC-MB at each study week but was only statistically significantly different at week 36.

This DNA/gp120 protein vaccine regimen induced strong gp120, gp140 and V1V2 region-focused binding IgG and Nab responses and preliminary evidence that S. mansoni infection may modulate antibody responses induced by vaccination is provided.