A

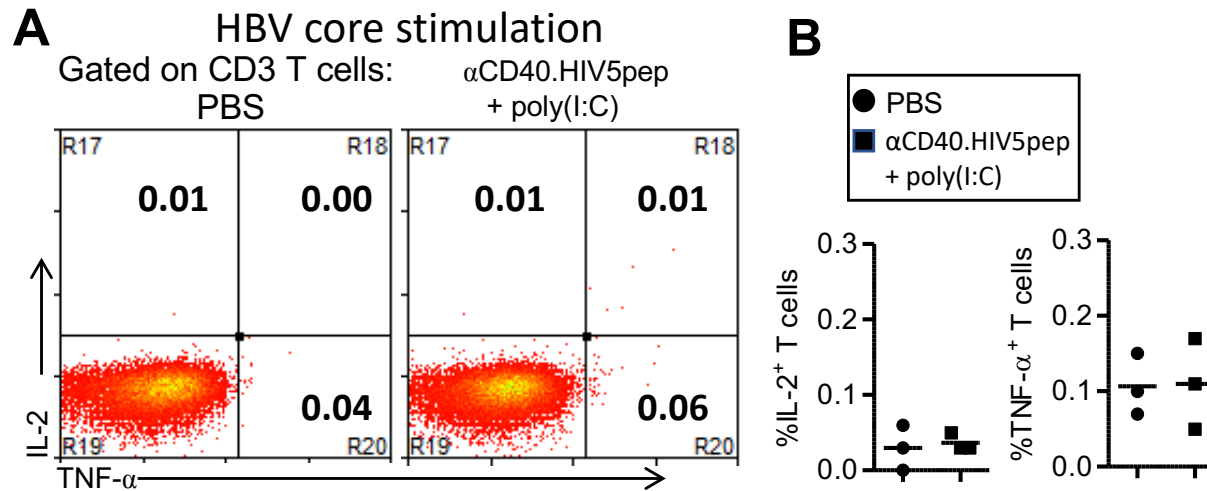CD1c+ vs CD141+ mDC

B

CD141+ mDC

C

Cytokines

Supplementary Figure 1. Poly(I:C) treatment activates human cDCs including CD141+ cDCs and induces IL-12 and IFN-α production in vivo in humanized mice. (A) Representative plot and summary data show percentages of CD1c+ and CD141+ mDCs. (B) Humanized mice were injected intraperitoneally with poly(I:C) or PBS. Leukocytes from spleen were isolated for flow cytometry analysis 24 hours after treatment. The expression of CD40, CD86 and HLA-DR on CD141+ mDCs after Poly(I:C) or PBS treatment was shown. (C) Cytokines in plasma were measured at the indicated time points after poly(I:C) injection. Shown (A-C) are representative data from 4 hu-mice per group with mean values ± s.e.m. of three independent experiments. **P < 0.01, ***P < 0.001 by unpaired, two-tailed Student's t-test.

A

HBV core stimulation

Gated on CD3 T cells: αCD40.HIV5pep
             PBS   + poly(I:C)

B

- ● PBS
- ■ αCD40.HIV5pep
      + poly(I:C)

Supplementary Figure 2. αCD40.HIV5pep with poly(I:C) vaccination induced T cells do not respond to irrelevant HBV antigen stimulation. Hu-mice were vaccinated with αCD40.HIV5pep with poly(I:C) and boosted at week 3. Mice treated with PBS were used as control. Mice were euthanized 10 days after the boost vaccination. Splenocytes from mice were stimulated ex vivo with HBV core protein. IL-2 and TNF-α expression by T cells were detected by intracellular staining. Representative plots (A) and summarized data (B) show percentages of IL-2- and TNF-α-producing T cells.
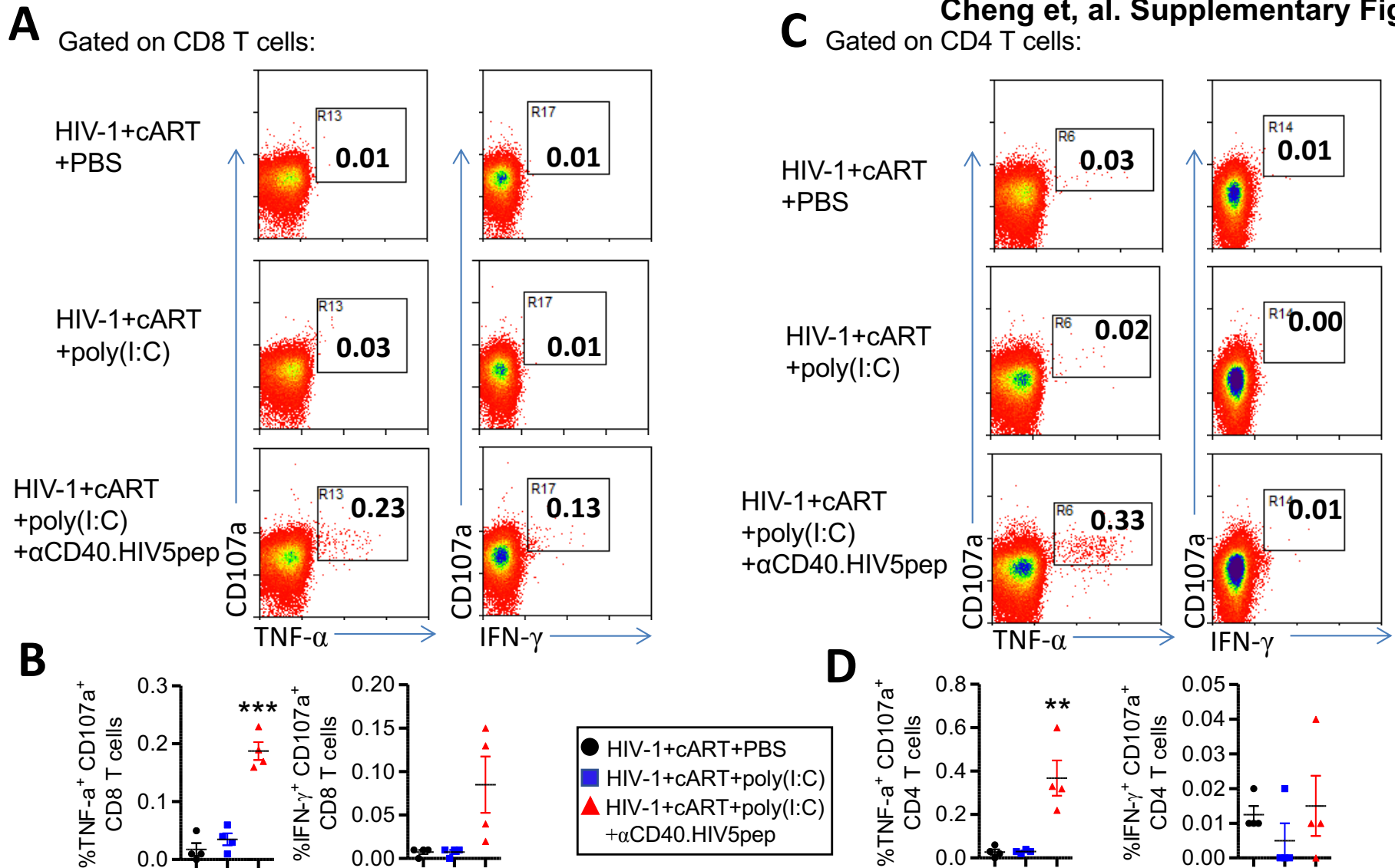
Supplementary Figure 3. αCD40.HIV5pep plus poly(I:C) therapeutic vaccination rescues anti-HIV-1 T cell responses. Humanized mice infected with HIV-1 were treated with cART from 5-12 weeks post infection (wpi). The mice were vaccinated with αCD40.HIV5pep plus poly(I:C) or treated with poly(I:C) or PBS as control at 8 wpi and 11 wpi. Mice were terminated at 12 wpi. Splenocytes from mice were stimulated ex vivo with corresponding 5 specific HIV-1 long peptides plus αCD28 mAb for 8 hours (BFA was added at 3 hours). Representative plots and summarized data show percentages of CD107a+ IFN-γ+ and CD107a+ TNF-α+ CD8+ T (A, B) cells and CD4+ T cells (C, D). Shown (A and C-E) are mean values ± s.e.m. from 4 mice each group. *P < 0.05, **P < 0.01, ***P < 0.001 by one-way analysis of variance (ANOVA) and Bonferroni's post hoc test.
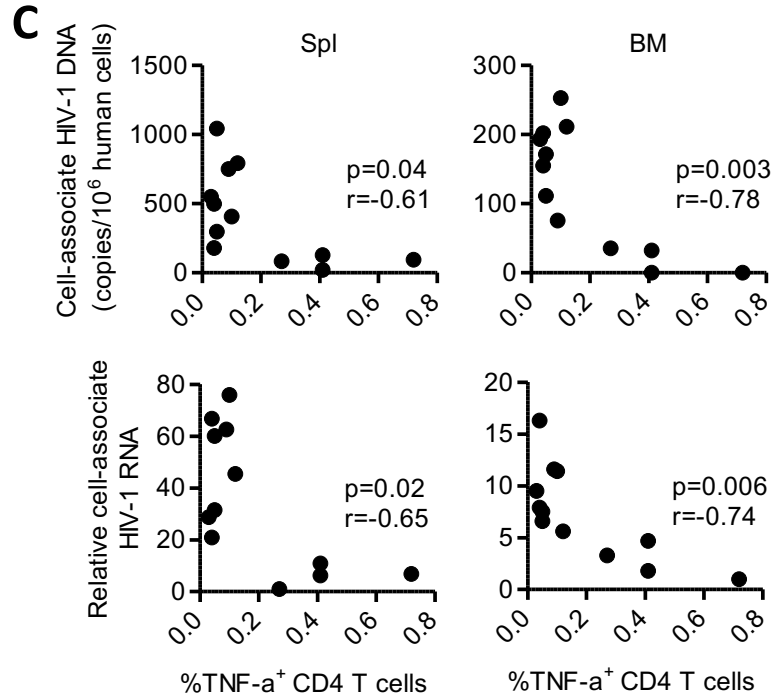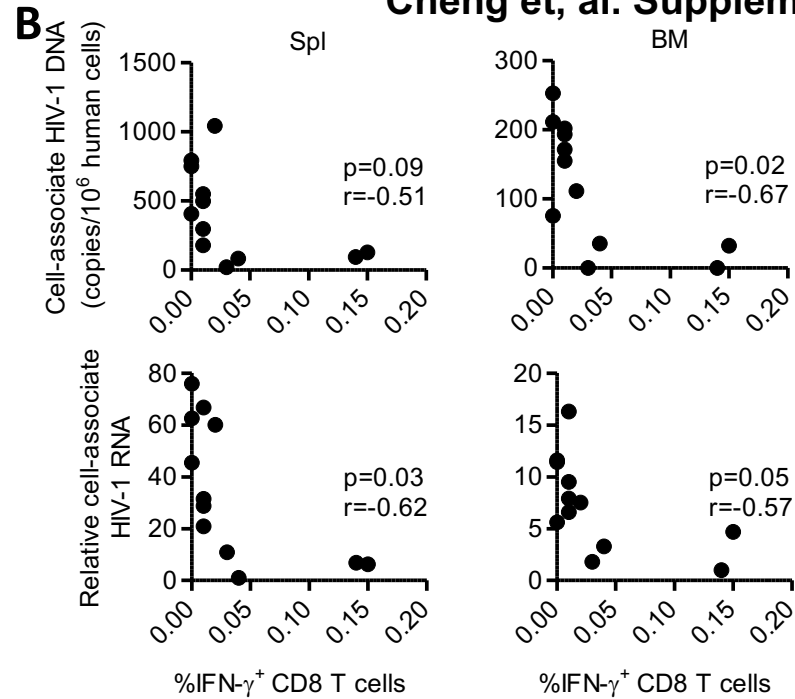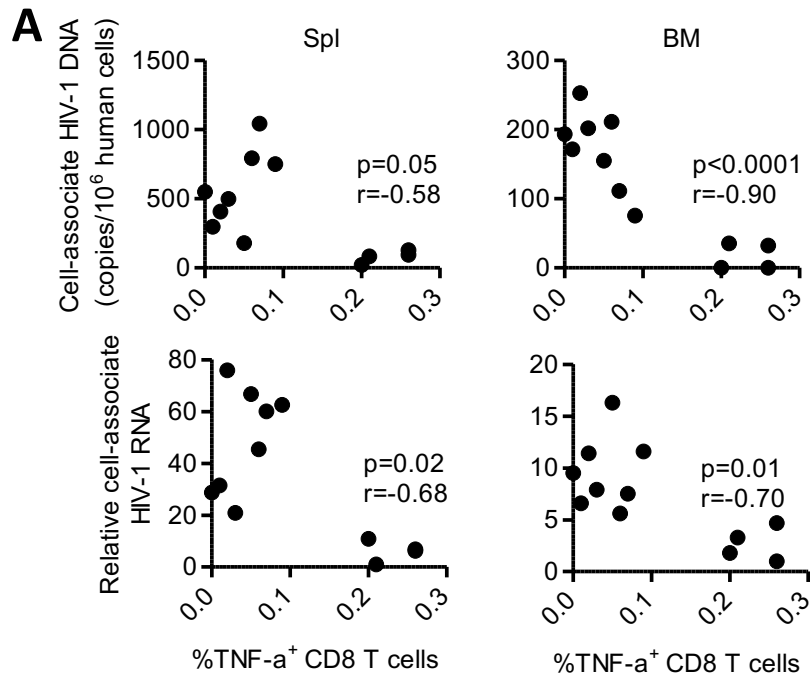
Supplementary Figure 4. Correlation analysis between vaccine-induced T cell responses and HIV-1 reservoir size. Correlation analysis were performed between vaccine-induced CD4 and CD8 T cell responses and cell-associated HIV-1 DNA and RNA detected in Figure 3. (A) Correlation analysis between TNF-α[+] CD8 T cells and cell-associated HIV-1 DNA and RNA. (B) Correlation analysis between IFN-γ[+] CD8 T cells and cell-associated HIV-1 DNA and RNA. (C) Correlation analysis between TNF-α[+] CD4 T cells and cell-associated HIV-1 DNA and RNA. Spearman rank correlation test were performed.