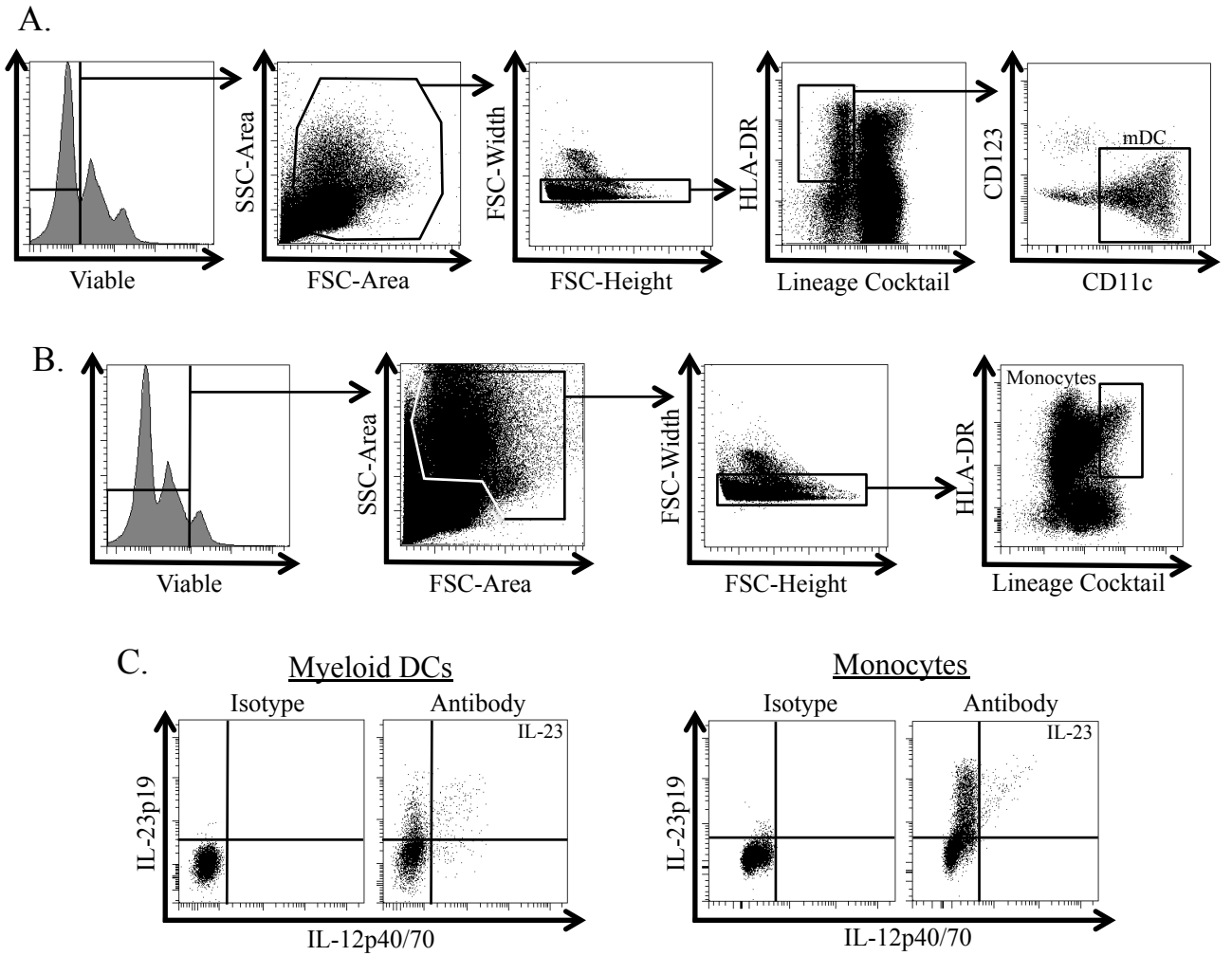

Fig. S1. Representative flow plots from an HIV-1-infected individual demonstrating the gating strategy used to identify mDCs and monocytes and evaluate their production of IL-23. Multi-color flow cytometry was used to identify mDCs (A) and monocytes (B) within total PBMC. (A) Total DCs were identified within viable cells. A small viability gate was used to exclude larger cells, such as monocytes. Doublets were excluded using forward scatter (FSC) height and width properties. Total DCs were defined as lineage cocktail$^-$ ($CD3^-CD14^-CD16^-CD19^-CD20^-CD56^-$) $HLA\text{-}DR^+$. mDCs were further defined as $CD123^{low}CD11c^+$. (B) Monocytes were identified within viable cells. A large viability gate was used to accommodate the larger size of the monocytes. Lymphocytes were excluded based on FSC and side scatter (SSC) properties. Monocytes were identified as lineage cocktail$^+$$HLA\text{-}DR^+$. (C) IL-23 production by mDCs and monocytes following *E. coli* stimulation were evaluated by co-expression of IL-23p19 and IL-12p40/70 as shown. Lines on each plot represent where gates were placed to evaluate positive staining for cytokines based on isotype staining.

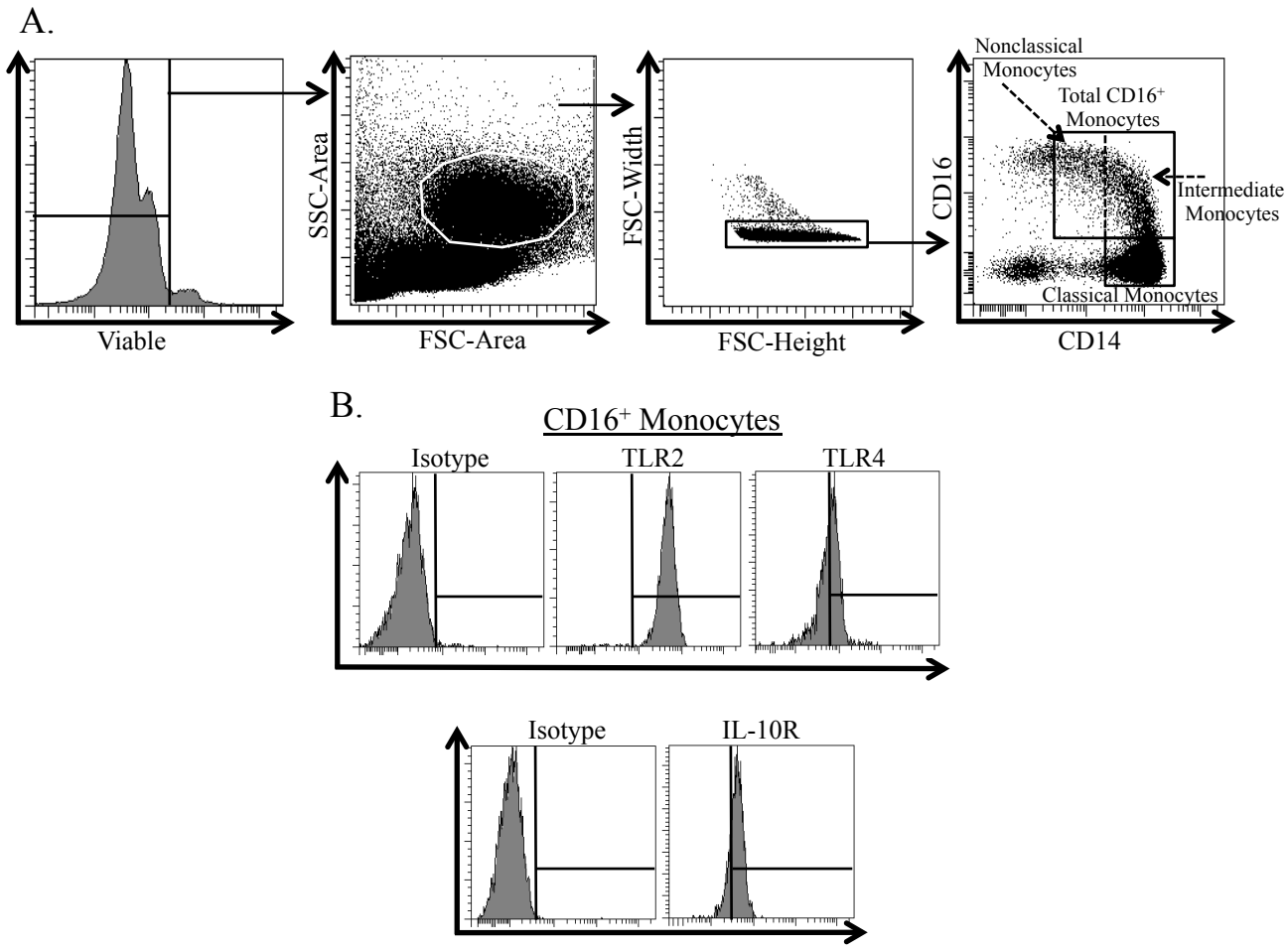

Fig. S2. Representative flow plots from an HIV-1-infected individual demonstrating the gating strategy used to calculate frequency and receptor expression of classical and CD16$^+$ monocytes within PBMC. Multi-color flow cytometry was used to identify receptor expression on monocyte subsets within total PBMC prior to *in vitro* culture. (A) Monocyte subsets were identified by first gating on viable cells, gating on large, granular cells, containing mostly monocytes, using FSC and SSC properties, gating out doublets, then identifying CD14^{hi}CD16$^-$ (classical) and CD14$^+$CD16$^+$ (CD16$^+$) monocytes. Within the CD16$^+$ monocytes, intermediate (CD14^{hi}CD16$^+$) and nonclassical (CD14^{low}CD16$^+$) monocytes were identified. (B) Expression of TLR2, TLR4 and IL-10 receptor (IL-10R) were identified on the CD16$^+$ monocyte subset. Lines on each plot represent where gates were placed to evaluate positive staining of TLR2, TLR4 and IL-10R based on isotype staining.

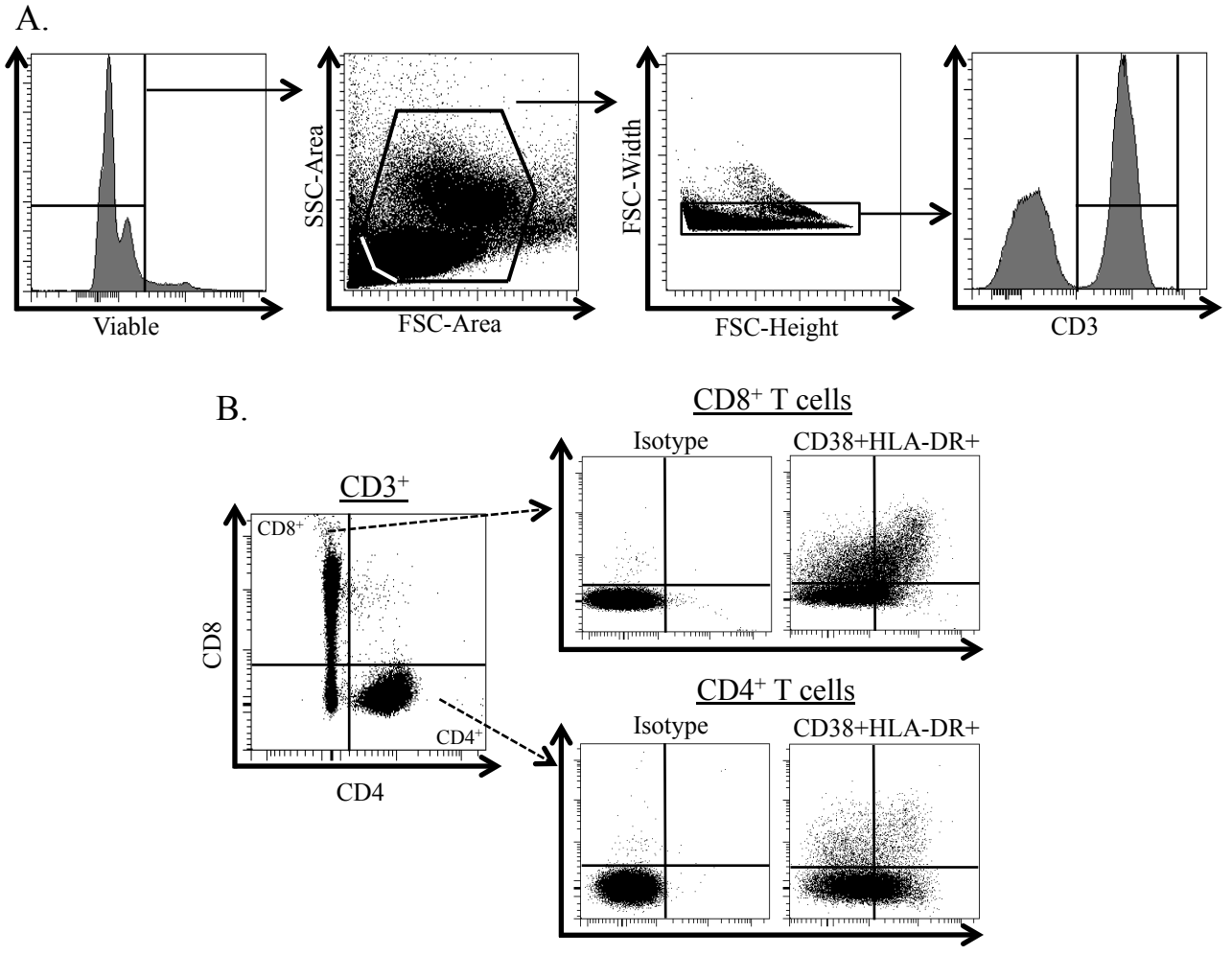

Fig. S3. Representative flow plots from an HIV-1-infected individual demonstrating the gating strategy used to calculate the percentage of CD38$^+$HLA-DR$^+$ CD8$^+$ and CD4$^+$ T cells . Multi-color flow cytometry was used to identify activated CD8$^+$ and CD4$^+$ T cells within unstimulated total PBMC. (A) CD3$^+$ T cells were identified by first gating on viable cells, then gating out cellular debris using FSC and SSC, gating out doublets, then identifying CD3$^+$ cells. (B) CD8$^+$ and CD4$^+$ T cells were identified within CD3$^+$ cells. Coexpression of CD38 and HLA-DR was identified on each T cell subset. Lines on each plot represent where gates were placed to evaluate positive staining of CD38 and HLA-DR based on isotype staining.

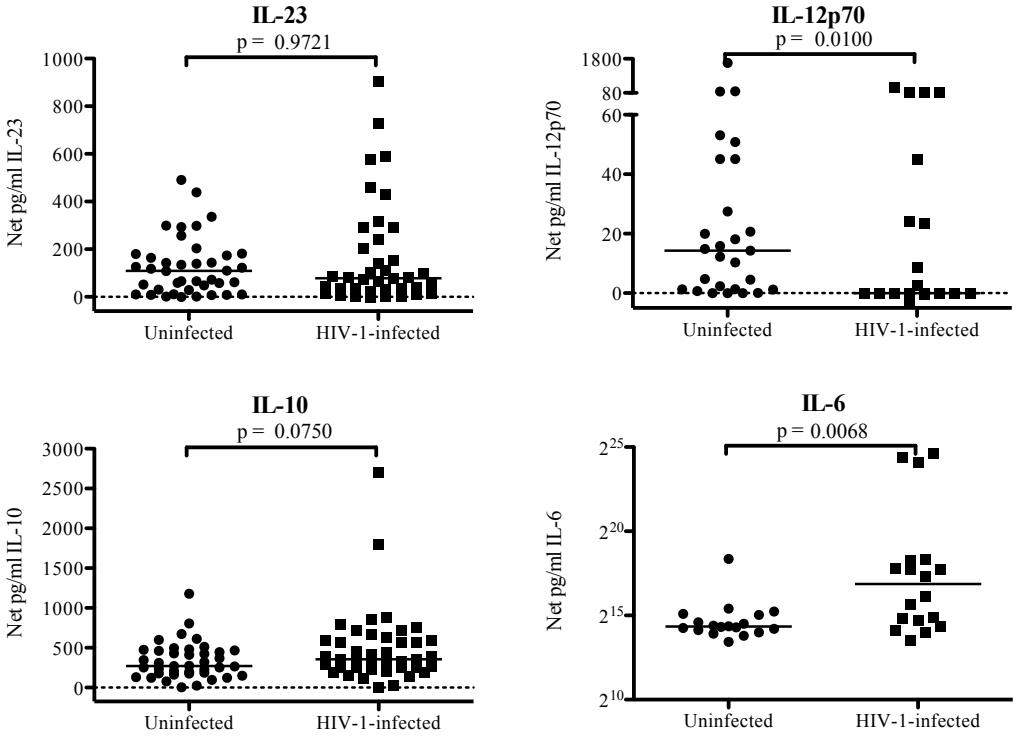

Fig. S4. Cytokine production by PBMC in response to *B. fragilis* stimulation. Total PBMC from uninfected or HIV-1-infected subjects were cultured with or without heat-inactivated *B. fragilis*. Levels of IL-23 (uninfected n=38, HIV-1-infected n=40), IL-12p70 (uninfected n=25, HIV-1-infected n=27), IL-10 (uninfected n=41, HIV-1-infected n=40) and IL-6 (Log_2 scale; uninfected n=18, HIV-1-infected n=18) were evaluated in culture supernatants. Values are shown as net cytokine production which was calculated by subtracting out the media only control value. Horizontal bars indicate median values. Statistical significance between uninfected and HIV-1-infected groups was calculated using a Mann-Whitney test.

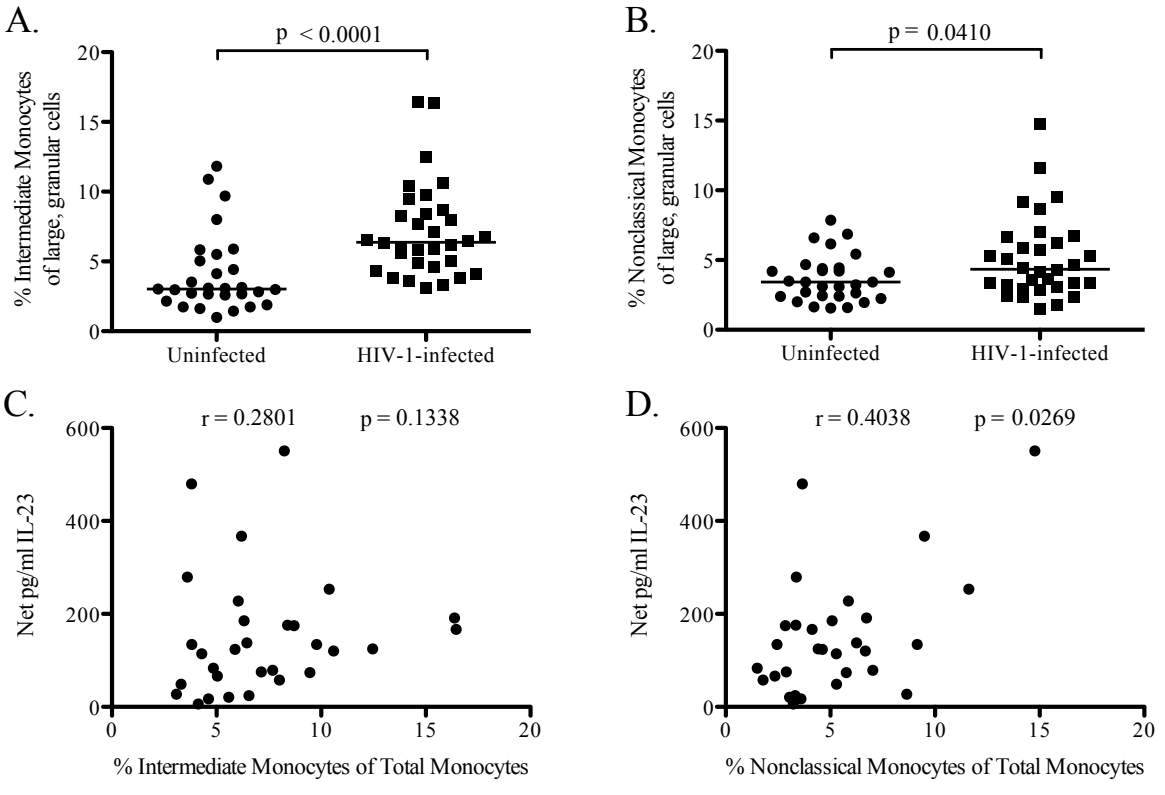

Fig. S5. Percentage of intermediate and nonclassical monocytes and correlation with *E. coli*-induced IL-23. (A and B) Percentage of intermediate (A) and nonclassical (B) monocytes of large, granular cells within PBMC were determined by flow cytometry in HIV-1-infected (n=32) and uninfected (n=29) subjects prior to *in vitro* culture (baseline). Intermediate and nonclassical monocytes were identified within $CD16^+$ monocytes as $CD14^{hi}CD16^+$ (intermediate) monocytes and $CD14^{low}CD16^+$ (nonclassical) monocytes. Percentages were calculated as a fraction of total monocytes. Horizontal bars indicate median values. Statistical significance between HIV-1-infected and uninfected groups was calculated using a Mann-Whitney test. (C and D) Correlation between percentage of intermediate (C) and nonclassical (D) monocytes and IL-23 produced by PBMC from HIV-1-infected individuals (n=30) in response to *in vitro E. coli* stimulation was calculated using a Spearman test.

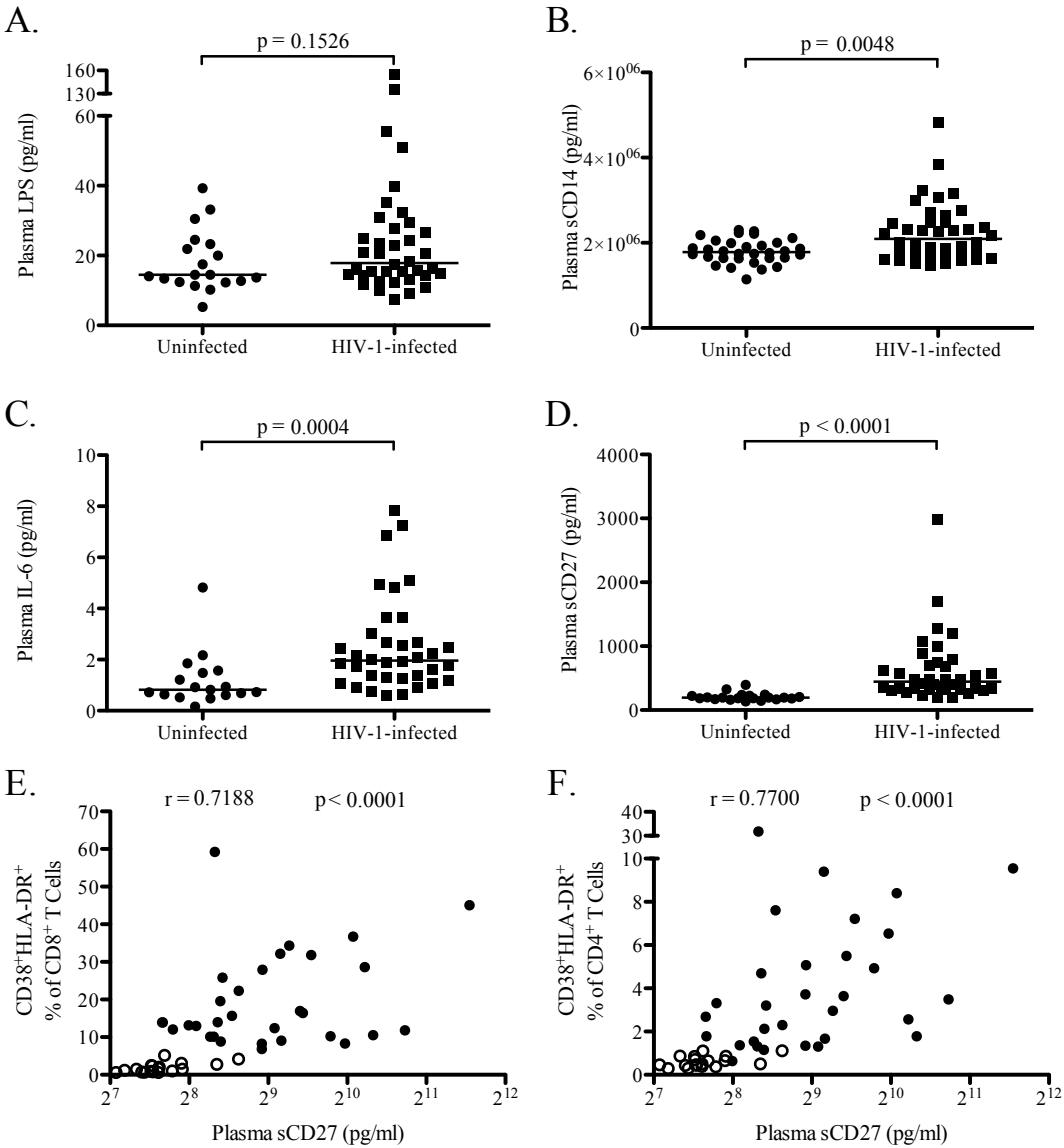

Fig. S6. Plasma levels of LPS, sCD14, IL-6 and sCD27 and correlation of percent of activated T cells with plasma levels of sCD27. Plasma levels of LPS (A), sCD14 (B), IL-6 (C) and sCD27 (D) were evaluated in uninfected (n=17-32) and HIV-1 infected (n=36-40) individuals. Horizontal bars indicate median values. Statistical significance between the two groups was calculated using a Mann-Whitney test. (E and F) Plasma sCD27 (Log_2 scale) were correlated with frequency of $CD38^+HLA\text{-}DR^+$ $CD8^+$ (E) and $CD4^+$ (F) T cells in all donors. Open circles represent uninfected (n=18) and closed circles represent HIV-1 infected (n=31) individuals. Correlations were calculated using a Spearman test.

Table S1. Associations of HIV-1 viral load, $CD4^+$ T cell count, T cell activation, and levels of plasma LPS, sCD14, IL-6 with *E. coli*-induced IL-10 and IL-23 production by total PBMCs and classical and $CD16^+$ monocyte frequencies

	IL-23 (pg/ml)	IL-10 (pg/ml)	$CD16^+$ Monocytes (%)	Classical Monocytes (%)
Viral Load (HIV-1 RNA copies/ml)	r=-0.09, p=0.57, n=38	r=-0.16, p=0.31, n=41	r=-0.10, p=0.60, n=32	r=0.08, p=0.68, n=32
CD4 T Cell Count (cells/µl)	r=-0.20, p=0.22, n=38	r=0.22, p=0.17, n=41	r=-0.26, p=0.15, n=32	r=0.12, p=0.51, n=32
LPS (pg/ml)	r=-0.09, p=0.61, n=35	r=-0.19, p=0.26, n=38	r=0.20, p=0.27, n=31	r=-0.14, p=0.46, n=31
sCD14 (pg/ml)	r=-0.08, p=0.64, n=37	r=-0.10, p=0.53, n=40	r=0.13, p=0.49, n=31	r=-0.08, p=0.67, n=31
Plasma IL-6 (pg/ml)	r=0.05, p=0.79, n=34	r=-0.06, p=0.73, n=36	r=0.01, p=0.95, n=30	r=-0.10, p=0.59, n=30
$CD38^+HLA\text{-}DR^+$ % of $CD8^+$ T Cells	r=-0.21, p=0.26, n=30	r=0.03, p=0.87, n=32	r=-0.09, p=0.61, n=32	r=-0.07, p=0.71, n=32
$CD38^+HLA\text{-}DR^+$ % of $CD4^+$ T Cells	r=0.19, p=0.29, n=30	r=-0.03, p=0.86, n=32	r=0.06, p=0.75, n=32	r=-0.11, p=0.56, n=32

Statistical significance was calculated using a Spearman's test.