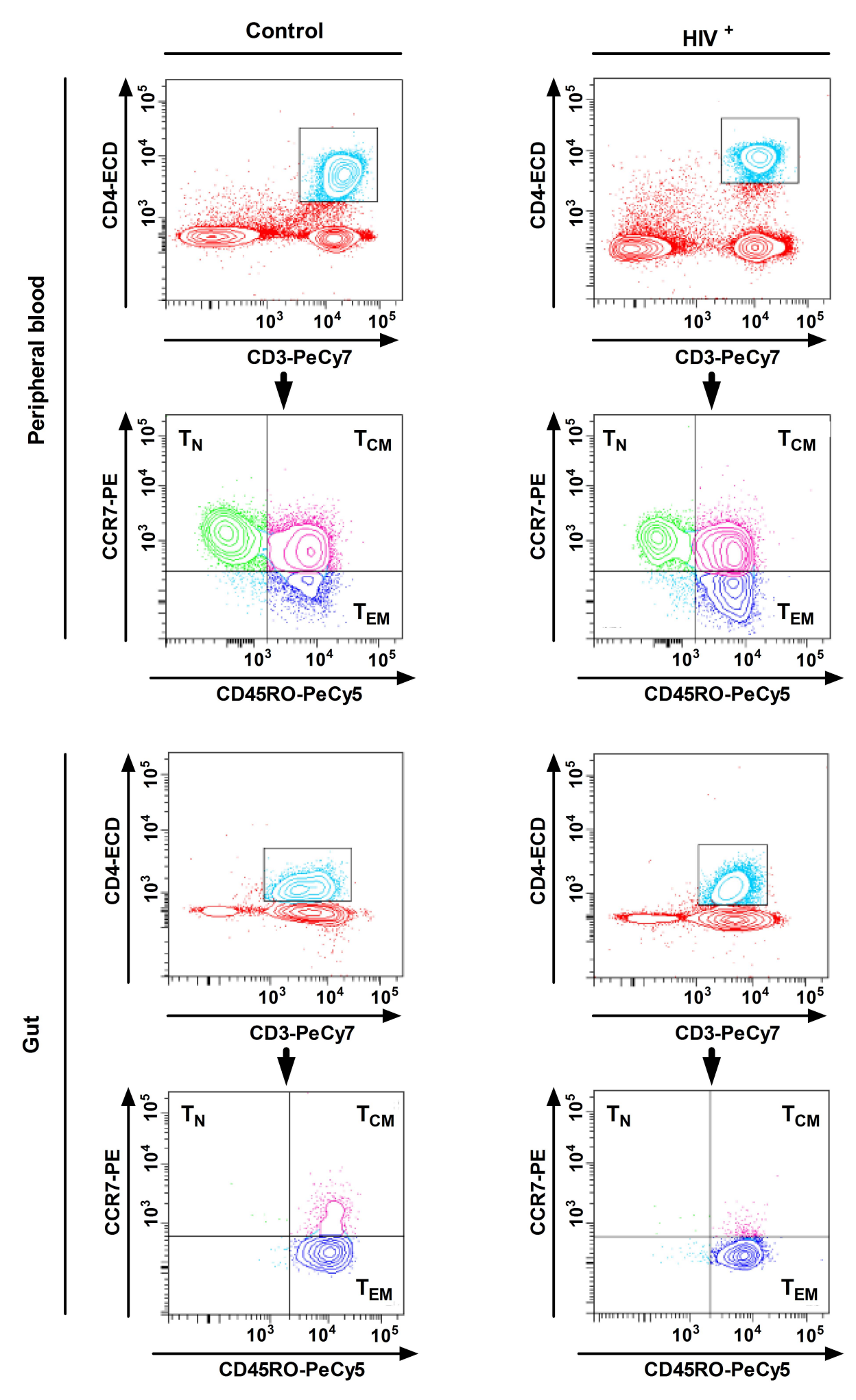
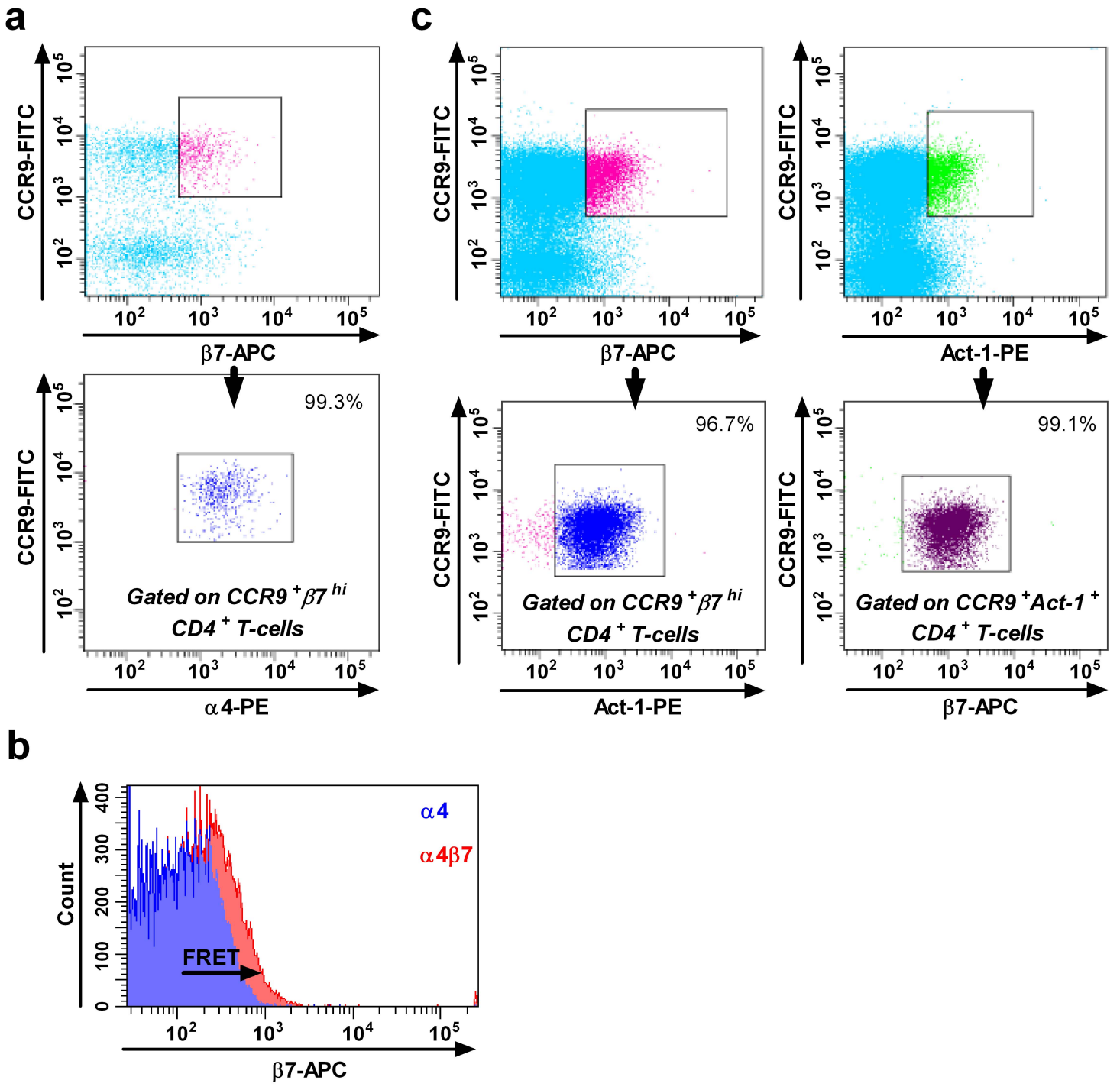
Supplemental Figure 1. Flow cytometry gating strategy for the naive and memory subsets of $CD4^+$ T-cells in peripheral blood and gut mucosa. A representative HIV-infected individual and an uninfected control are shown. T_N, naive $CD4^+$ T-cell subset; T_{CM}, central memory $CD4^+$ T-cell subset; T_{EM}, effector memory $CD4^+$ T-cell subset.

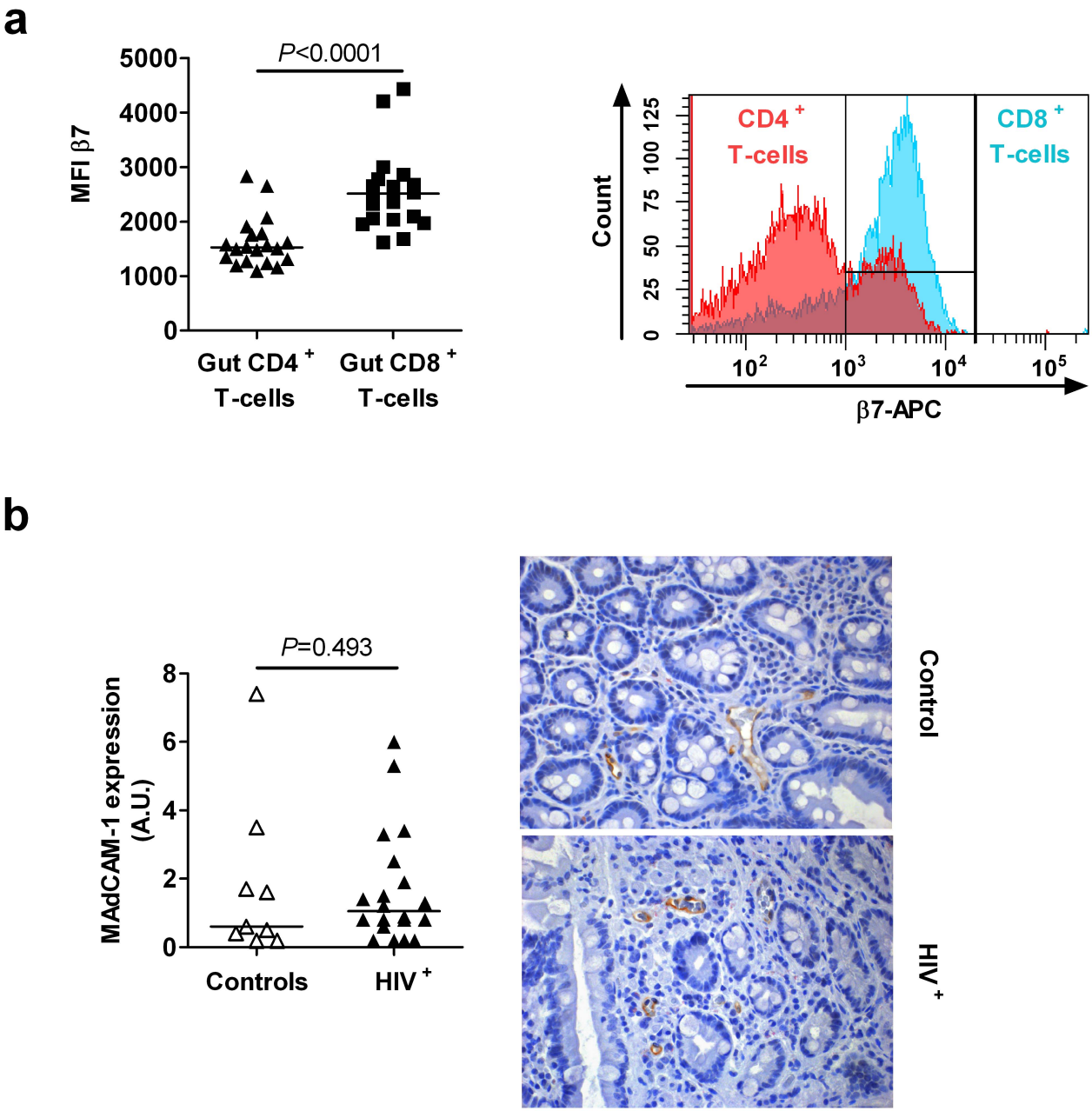
Supplemental Figure 2. Flow cytometry analysis of CCR9 and β7 on $CD4^+$ T-cells. (**a**) Flow cytometry assay of α4 integrin chain on $CCR9^+\beta7^{hi}$ $CD4^+$ T-cells. (**b**) FRET demonstration of the association between the α4 and β7 chains at the surface of $CCR9^+$ $CD4^+$ T-cells: α4-PE was stimulated at 488 nm (donor) and β7-APC emission was detected at 675 nm (acceptor). (**c**) Flow cytometry showing $CCR9^+\beta7^{hi}$ $CD4^+$ T-cells labelled with the α4β7 Act-1 mAb.

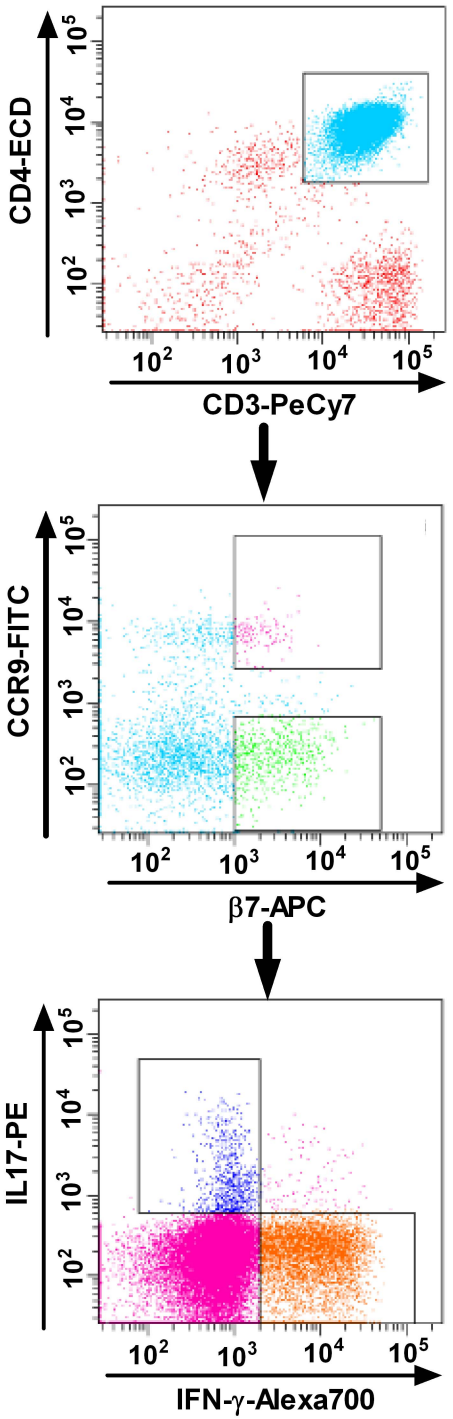
Supplemental Figure 3. High expression levels of β7 integrin on gut $CD8^+$ T-cells and preserved MAdCAM-1 expression in the jejunum lamina propria of HIV-infected individuals. (**a**) Flow cytometry analysis of β7 integrin on gut $CD4^+$ and $CD8^+$ T-cells of HIV-infected individuals (n=20). Median Fluorescence Intensities (MFI) of β7 were measured after gating on $\beta7^{high}$ $CD4^+$ and $CD8^+$ T-cells. Horizontal lines indicate median values. (**b**) MAdCAM-1 expression on blood vessels of the jejunum lamina propria of HIV-infected individuals (n=20) and uninfected individuals (n=9). Horizontal lines indicate median values. A representative HIV-infected individual and an uninfected control are shown. MAdCAM-1 (brown) was stained by immunohistochemistry and its expression on jejunum blood vessels was measured semiquantitatively.

Supplemental figure 4. Detection of IL-17 and IFN-γ-producing cells. The $CCR9^+\beta7^{hi}$ and $CCR9^-\beta7^{hi}$ $CD4^+$ T-cell subsets were sorted from $CD3^+CD4^+$ T-cells on a BD FACSAria and then stimulated with PMA/ionomycin. Intracellular IL-17 and IFN-γ staining, and flow cytometry analysis.


Control
HIV +
Peripheral blood
Gut
CD4-ECD
CD3-PeCy7
CCR7-PE
CD45RO-PeCy5
T_N
T_CM
T_EM
10^3
10^4
10^5


a
CCR9-FITC
β7-APC
99.3%
Gated on CCR9 + β7 hi
CD4 + T-cells
α4-PE
c
CCR9-FITC
β7-APC
Act-1-PE
96.7%
Gated on CCR9 + β7 hi
CD4 + T-cells
Act-1-PE
99.1%
Gated on CCR9 + Act-1 +
CD4 + T-cells
β7-APC
b
Count
α4
α4β7
FRET
β7-APC


a
P<0.0001
MFI β7
5000
4000
3000
2000
1000
0
Gut CD4 + T-cells
Gut CD8 + T-cells
Count
0
25
50
75
100
125
CD4 + T-cells
CD8 + T-cells
10^2
10^3
10^4
10^5
β7-APC
b
P=0.493
MAdCAM-1 expression (A.U.)
8
6
4
2
0
Controls
HIV +
Control
HIV +


CD4-ECD
10^2
10^3
10^4
10^5
CD3-PeCy7
CCR9-FITC
β7-APC
IL17-PE
IFN-γ-Alexa700