Depletion of CX3CR1+ effector CD8 TRM cells is associated with HIV-1 reservoir in the colon on ART

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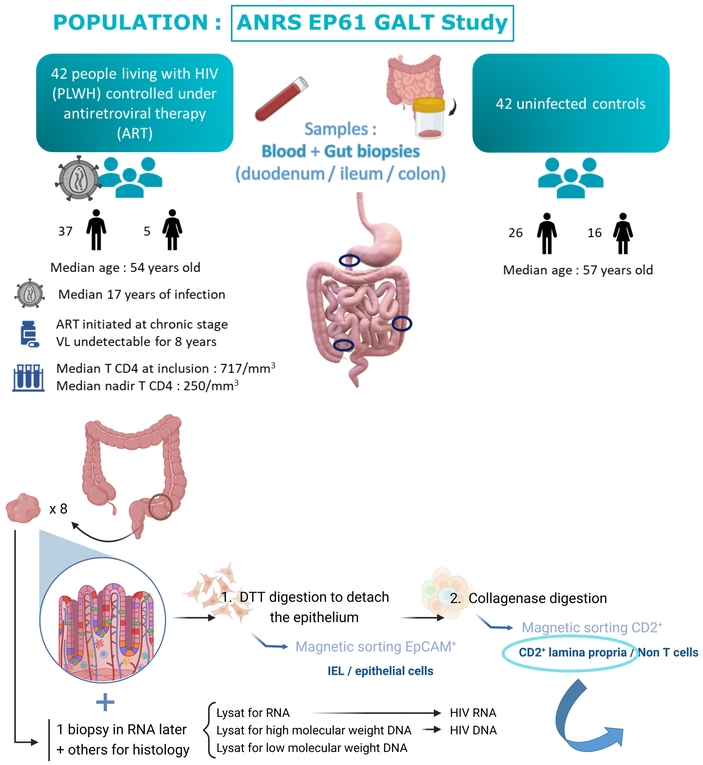
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BACKGROUND

The identification of host immune factors involved in the persistence of tissular HIV-1 reservoirs is crucial for the development of remission strategies. The gut is a reservoir for HIV-1 in people living with HIV (PLWH) on ART, which may be related to the local loss of tissular resident memory (T_{RM}) CD69$^+$CD103$^+$ CD8$^+$ T cells.

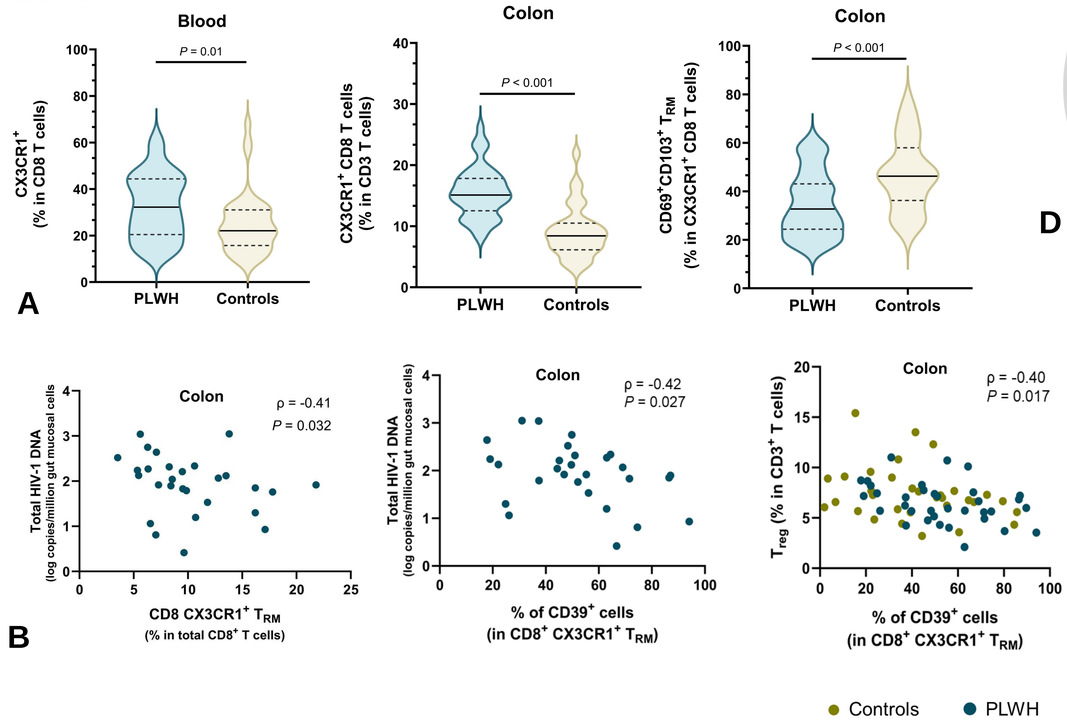
METHODS

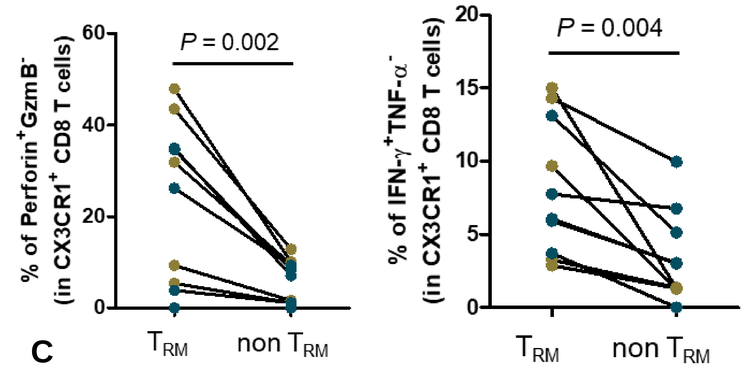
Characterization of the phenotype and function of T cells within the lamina propria was performed by FACS.

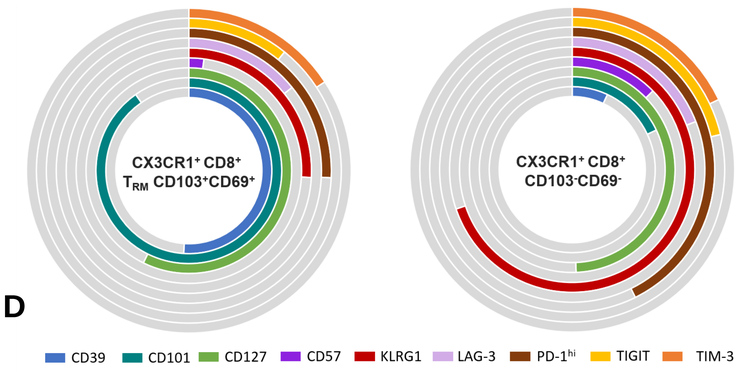


Effector CX3CR1$^+$ CD69$^+$CD103$^+$ T_{RM} CD8$^+$ cells are associated with a reduced HIV-1 reservoir in the colon, but are depleted in favor of non-T_{RM} cells

RESULTS







Figures. (A) CD8 CX3CR1$^+$ were increased in the blood (n = 42 PLWH and 42 controls) and the colon lamina propria (n = 35 PLWH and 32 controls) during HIV-1 infection on ART, but the CD8 CX3CR1$^+$ T_{RM} subset was decreased in their colon (CD103$^+$CD69$^+$). (B) HIV-1 reservoir in the colon was negatively correlated with CD8 CX3CR1$^+$ T_{RM} and the level of CD39 expression within the same population. CD39$^+$CD8$^+$CX3CR1$^+$ T_{RM} negatively correlated with the % of T_{reg} among T cells in the colon. Distinct (C) functional profile and (D) immune phenotype of CD8 CX3CR1$^+$ T_{RM} and non-T_{RM} within colon.

CONCLUSIONS

Effector CX3CR1$^+$ CD69$^+$CD103$^+$ T_{RM} CD8$^+$ cells are associated with a reduced HIV-1 reservoir in the colon, but appear to be depleted in favor of CX3CR1$^+$ CD69$^-$CD103$^-$ non-T_{RM} CD8$^+$ T cells with a more exhausted (TIGIT$^+$TIM-3$^+$LAG-3$^+$PD-1^{hi}) and senescent (KLRG1$^+$CD57$^+$) phenotype. Increasing cytotoxic effector CD8$^+$ TRM cells may be an axis to reduce the tissular viral reservoir and achieve HIV-1 remission.

ADDITIONAL KEY INFORMATION

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