HIV-1 Transcriptional Activity is Largely Driven by Defective Proviruses

467

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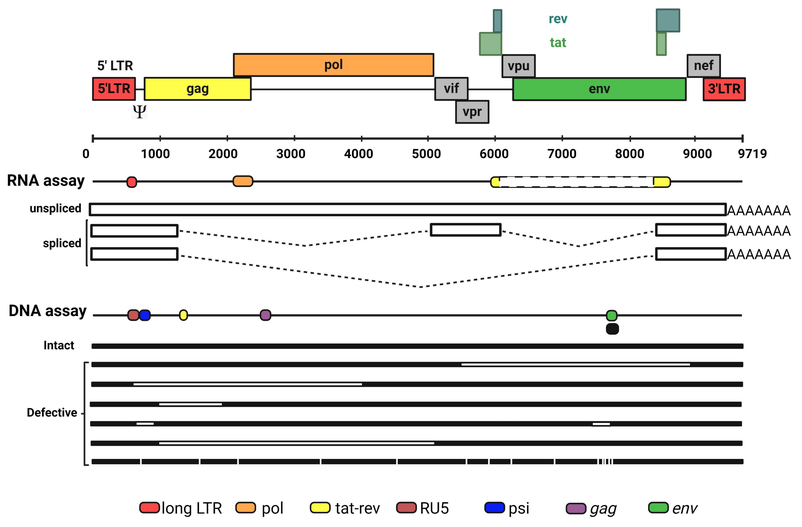
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BACKGROUND

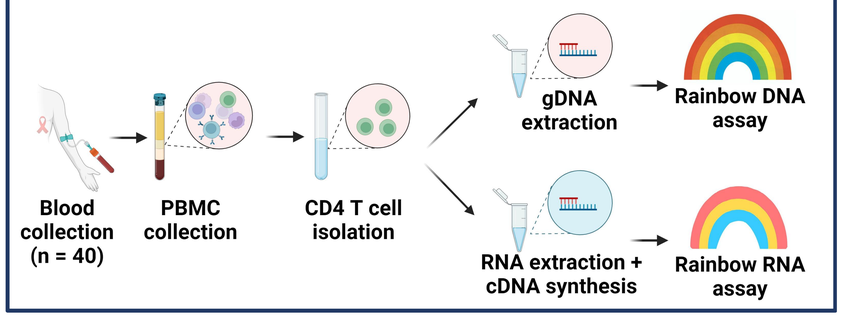
The majority of latently HIV-1 infected cells in people living with HIV-1 (PLWH) do not produce viral RNA, making it difficult for the immune system and current antiretroviral therapy (ART) to target them.

METHODS

1. The Rainbow transcriptional HIV-1 RNA 3-plex assay was tested with a 2-fold dilution curve (range: 0.005-2.5 ng J-Lat cDNA, n = 20).



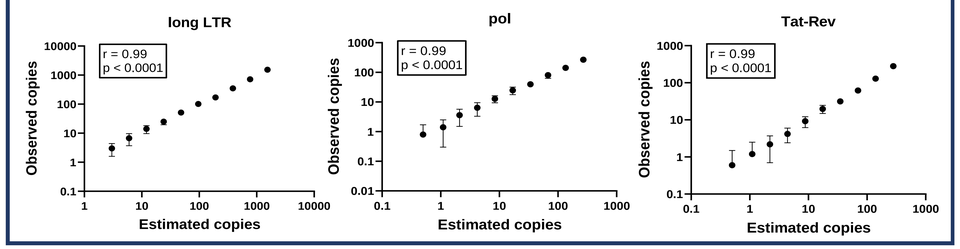
2. HIV-1 DNA and RNA levels were quantified in ART treated PLWH



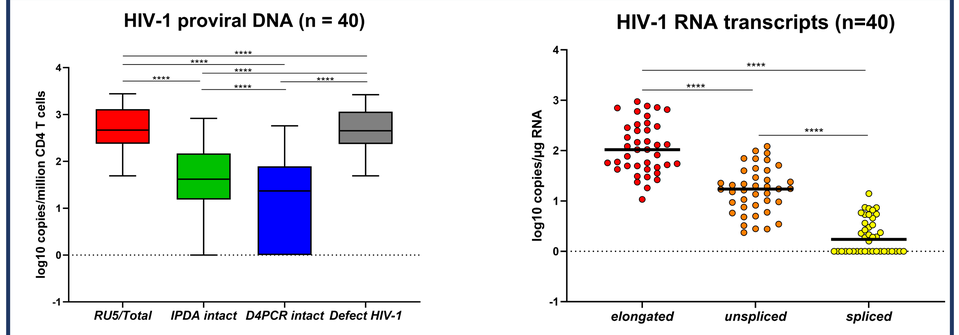
The combined Rainbow DNA and RNA assays maximize information on HIV-1 reservoir with minimal amount of sample.

RESULTS

1. Linear quantification for all transcripts.

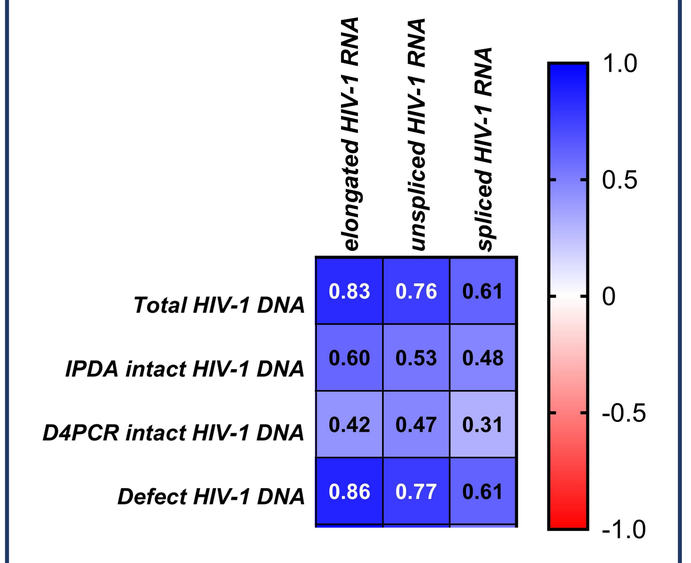


2. HIV-1 DNA and RNA levels in 40 ART treated PLWH.



***IPDA intact**: psi+env+, **D4PCR intact**: psi+gag+pol+env+, **Defect**: Total HIV-1 – D4PCR intact*

3. Defective proviruses show strongest correlation with HIV-1 RNA transcripts.



CONCLUSION

The Rainbow proviral HIV-1 DNA and transcriptional HIV-1 RNA assay allow us to map the characteristics of the viral reservoir by using a minimal amount of sample. This analysis resulted in a strong correlation between defective proviruses and HIV-1 RNA transcripts, suggesting that the HIV transcriptional activity is largely driven by defective proviruses.

ACKNOWLEDGEMENTS

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ADDITIONAL KEY INFORMATION

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Clinical Trial: NCT04553081

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