LATENT HIV CLONAL DYNAMICS: PROVIRAL INTEGRATION SITES AND THEIR ROLE IN MAINTENANCE OF LATENCY *IN VIVO*

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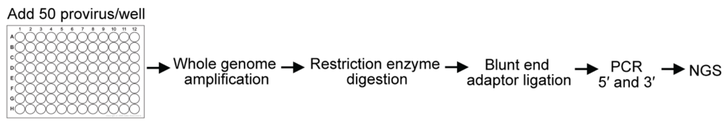
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BACKGROUND

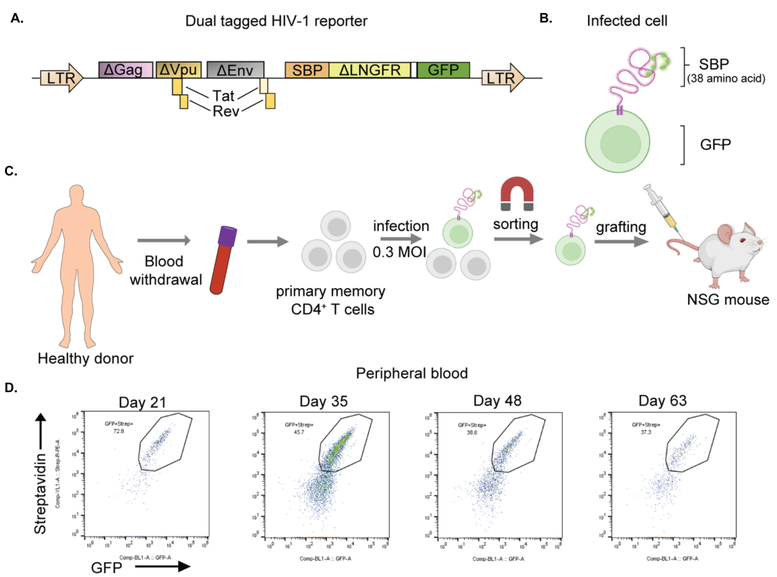
- HIV-1/AIDS remains a global epidemic with 1.3 million new infections reported in 2023.
- Latent reservoirs of HIV-1 are the major barrier to obtain a cure.
- Lack of comprehensive understanding behind mechanisms involved in clonal expansion of HIV-1 infected cells and maintenance of latency *in-vivo*.

METHODS

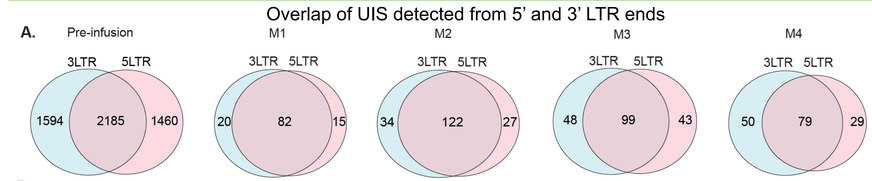
- HIV-1 reporter virus infected human memory CD4⁺ T cells engraftment into NSG mice.
- Flow-cytometry based analysis of HIV-1 infected human cells post-engraftment in mouse peripheral blood and tissues.
- HIV-1 integration site sequencing and bioinformatic analysis to identify chromosomal coordinates of HIV-1 integration in human genome.

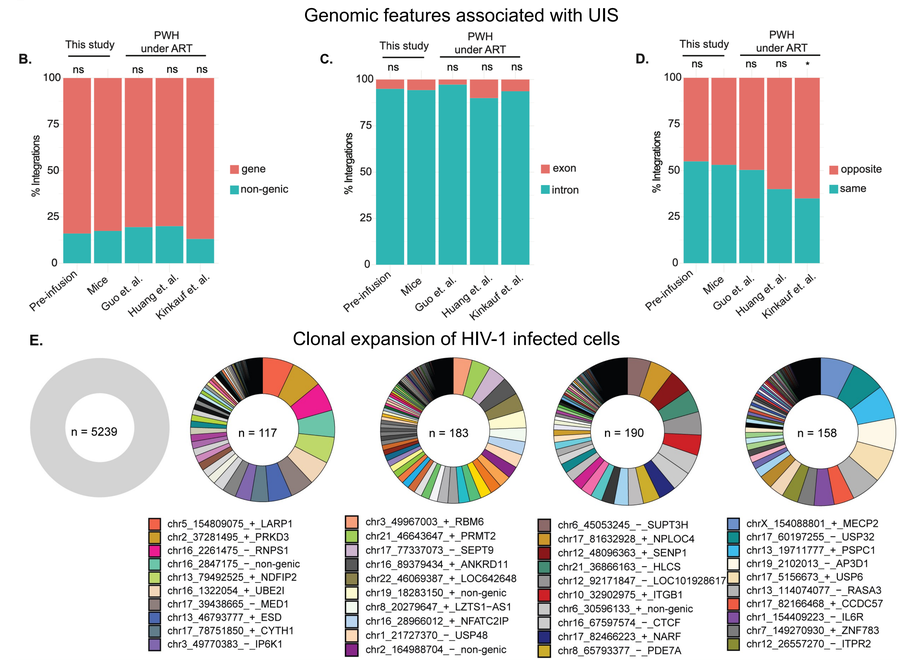


RESULTS

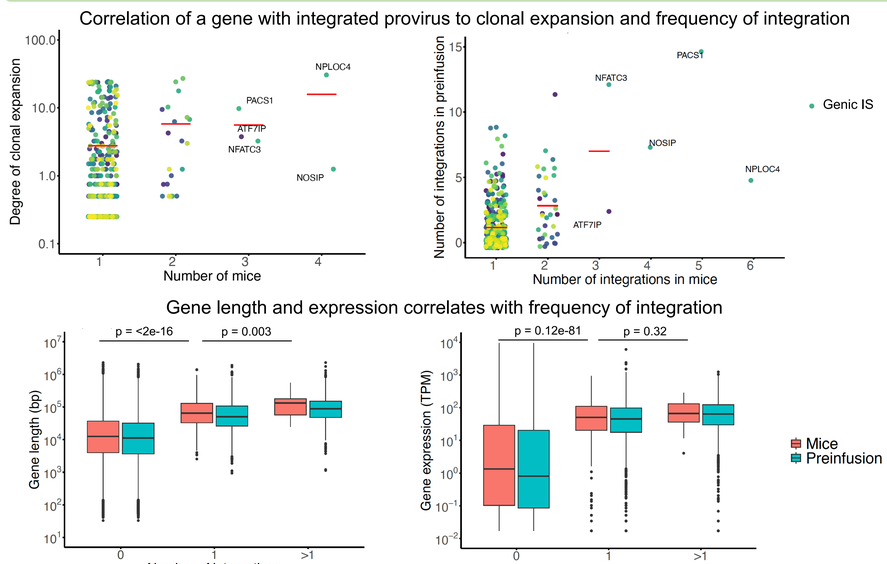


Clonal expansion of HIV-1 infected cells *in vivo*

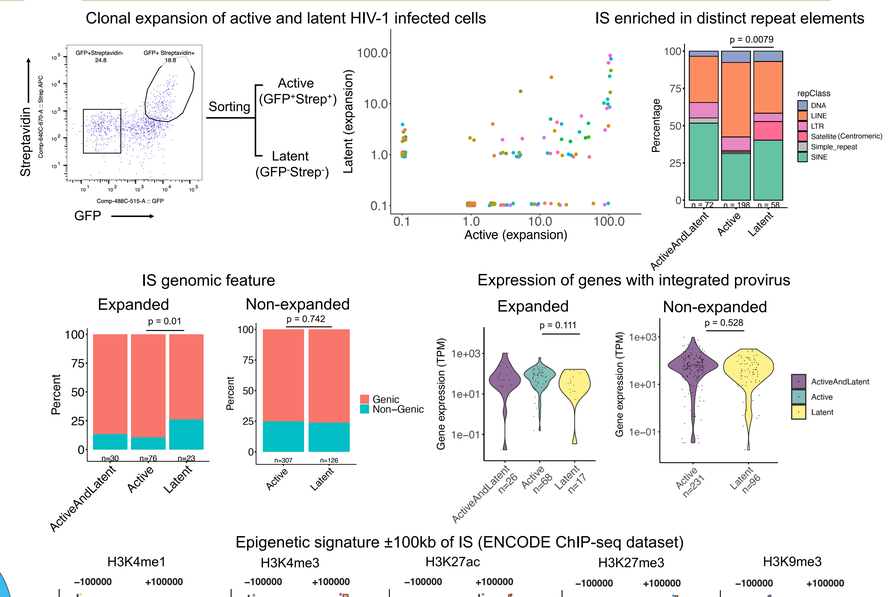


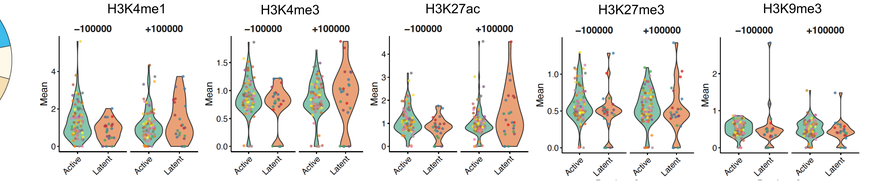


Does HIV-1 integration derive cell survival and clonal expansion?

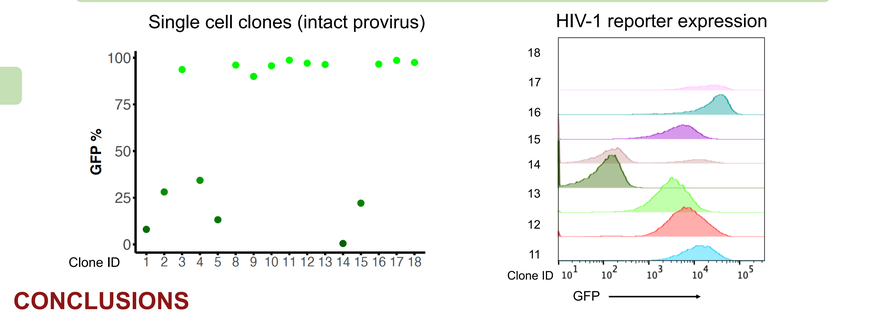


Distinct genomic and epigenetic feature of Latent IS





HIV-1 IS impact provirus reporter expression



CONCLUSIONS

- HIV-1 infected memory CD4⁺ T cells clonally expand and form clones with latently integrated provirus post-engraftment in NSG mouse.
- IS of latent HIV-1 clones have reduced transcriptionally active histone marks signature as compared to active HIV-1 IS.
- HIV-1 IS impacts the provirus reporter expression as obsereved in HIV-1 infected single cell clones.

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REACH For the Cure — Research Enterprise to Advance a Cure for HIV

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