ROLE OF HIV INTEGRATION SITE IN CLONAL EXPANSION OF INFECTED CELLS AND MAINTENANCE OF LATENCY IN VIVO

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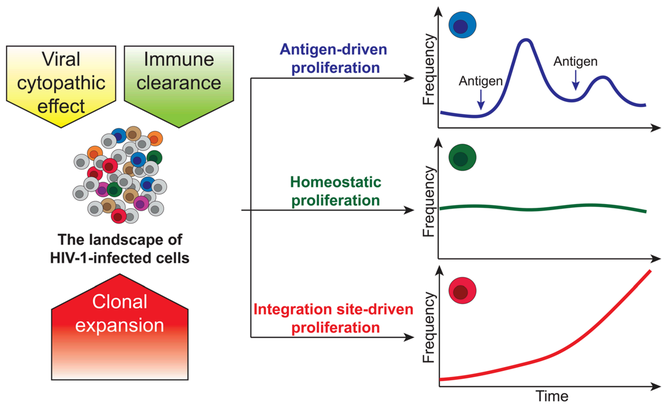
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BACKGROUND

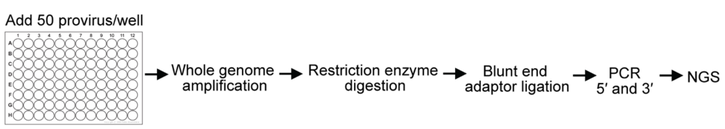
- HIV-1/AIDS remains a global epidemic with 1.3 million new infections reported in 2022.
- Latent reservoirs of HIV-1 are the major barrier to obtain a cure.
- Lack of comprehensive understanding behind mechanisms involved in clonal expansion of HIV-1 infected cells and maintenance of latency *in-vivo*.



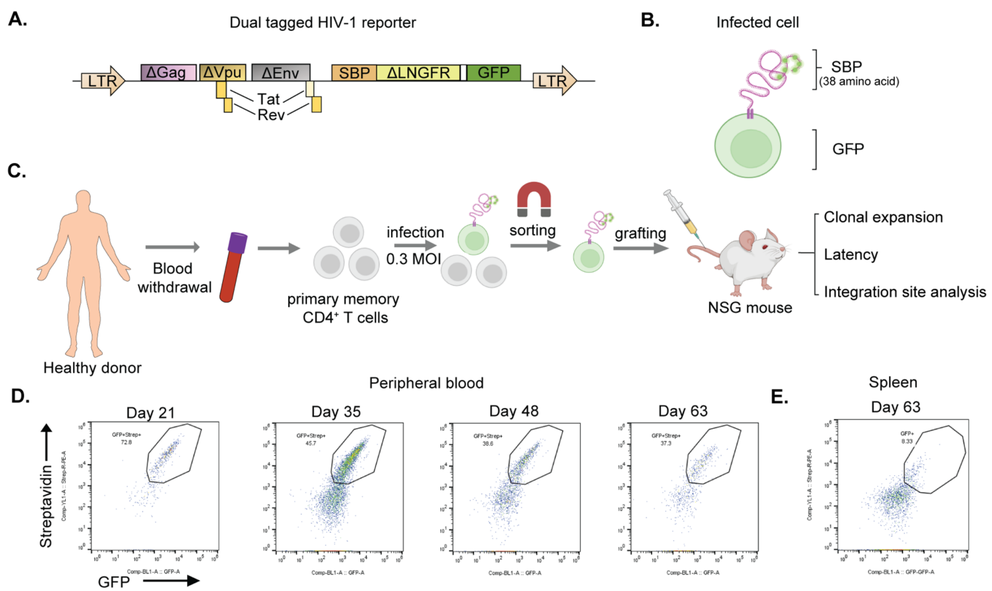
(Liu *et. al.*, *Virology Journal*, 2020)

METHODS

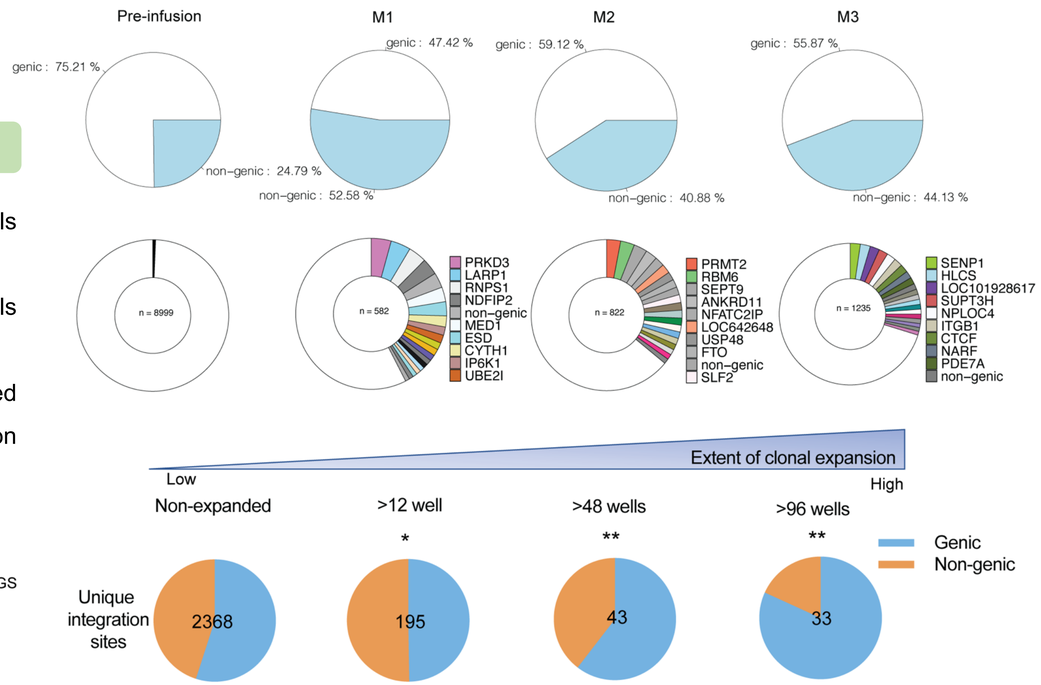
- HIV-1 reporter virus infected human memory CD4⁺ T cells engraftment into NSG mice.
- Flow-cytometry based analysis of HIV-1 infected human cells post-engraftment in mouse peripheral blood and tissues.
- HIV-1 integration site sequencing assay and bioinformatic based analysis to identify chromosomal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



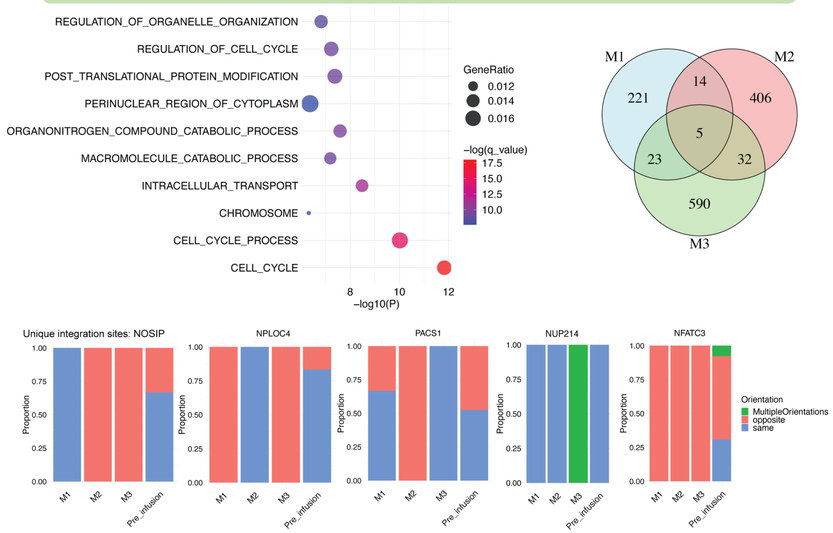
RESULTS



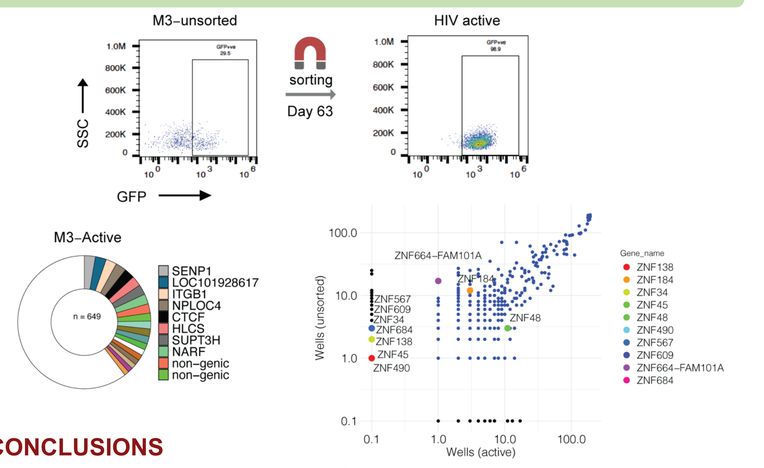
Clonally expanded cells are more likely to have HIV-1 integration in genes



Pathways associated with genes with integrated HIV-1 provirus



HIV-1 transcriptional status in expanded clones



CONCLUSIONS

- HIV-1 infected memory CD4⁺ T cells clonally expand and form clones with latent HIV-1 provirus post-engraftment in NSG mouse.
- Clonally expanded cells are more likely to have HIV-1 integration in genes.
- Clonal expansion is associated with HIV-1 integration in genes involved in cell cycle, macromolecule catabolism and growth.

Acknowledgements

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