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Tenofovir Alafenamide Reduces HTLV-1c Transmission in a Novel Humanised Mouse Model of Infection

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Mastery of Disease Through Discovery

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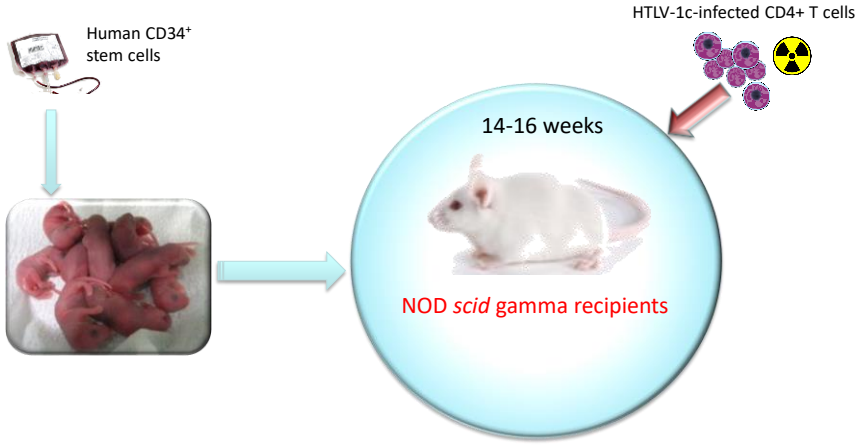
Chronic HTLV-1c infection can be established in humanised mice



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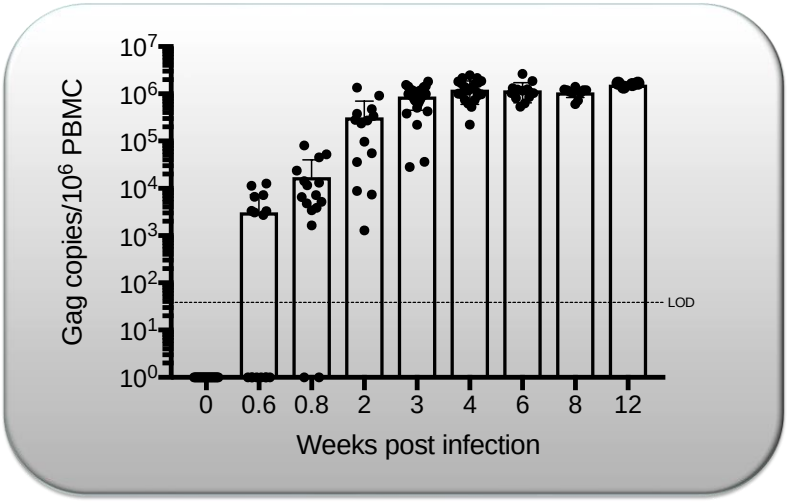
HTLV-1c-infected mice develop high pro-viral load



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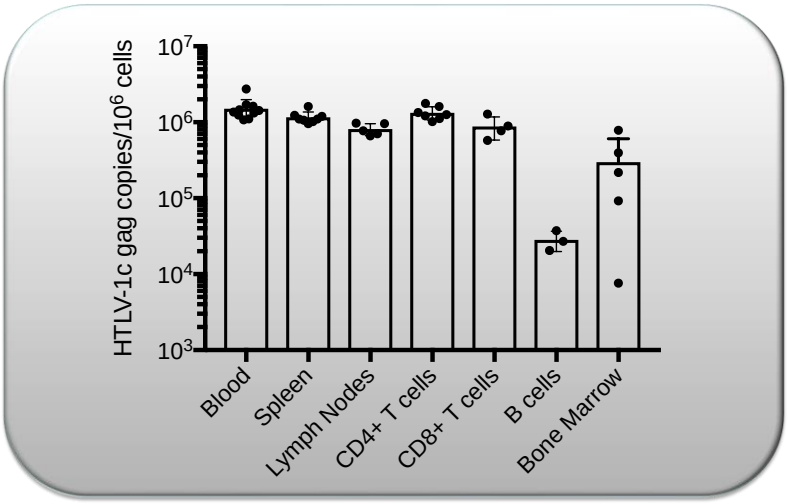
The HTLV-1c pro-virus is detected in multiple tissues and cellular compartments



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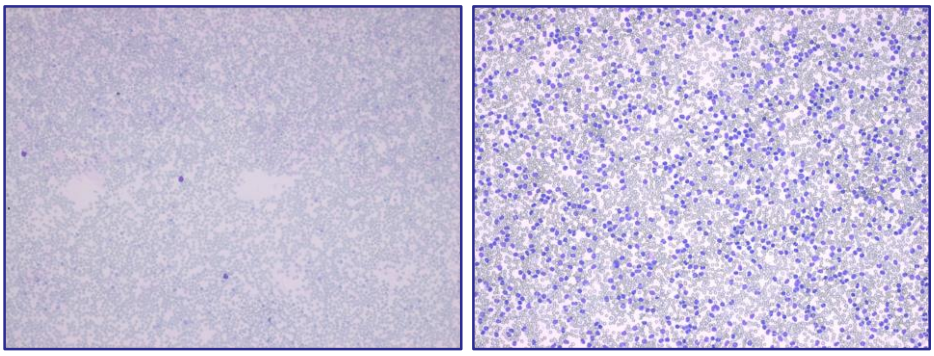
HTLV-1c causes leukocytosis in infected animals



Mock-infected

HTLV-1c-infected

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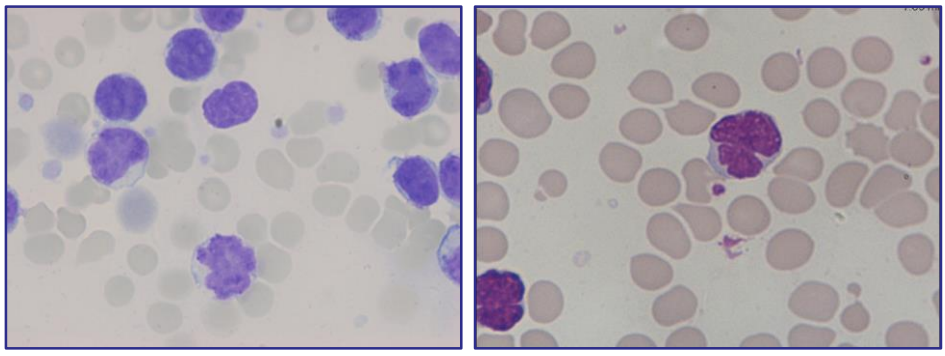
HTLV-1c infected cells have flower/'lobed-like' nuclei



Humanised mice PBMC

Patient PBMC

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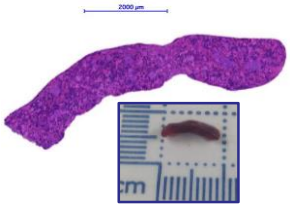
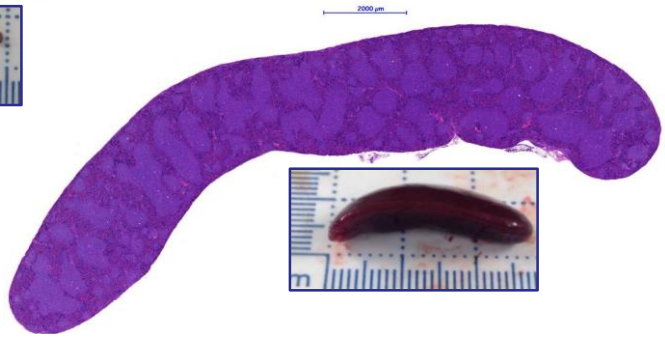
HTLV-1c infected animals develop splenomegaly

Mock-infected



HTLV-1c-infected



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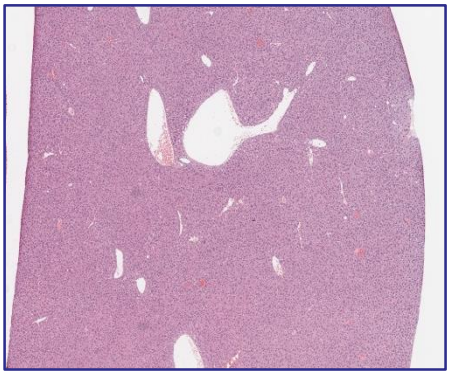
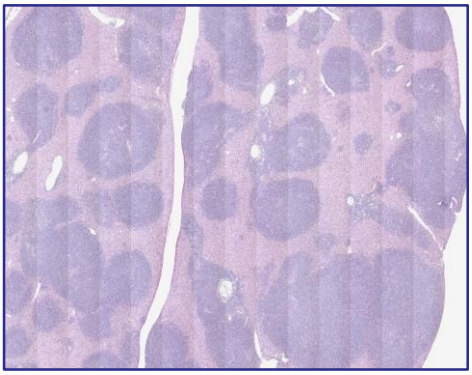
HTLV-1c infected animals have immune-cell infiltration in the liver



Mock-infected liver (H&E)



HTLV-1c infected liver (H&E)

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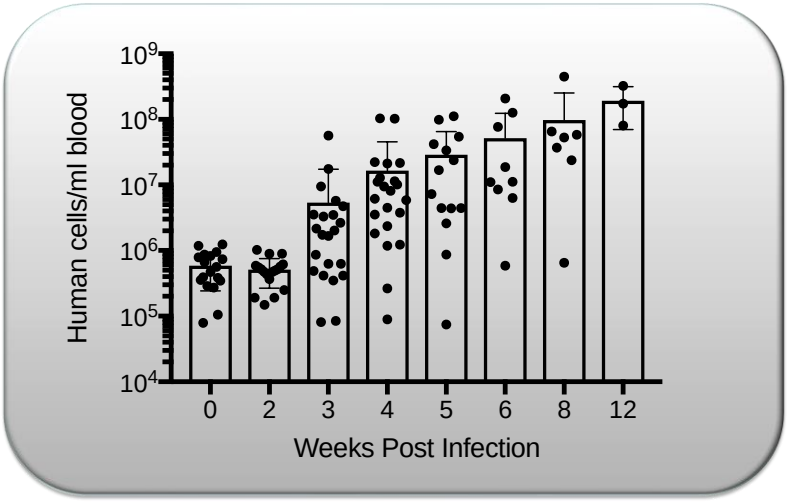
HTLV-1c causes leukocytosis in infected animals



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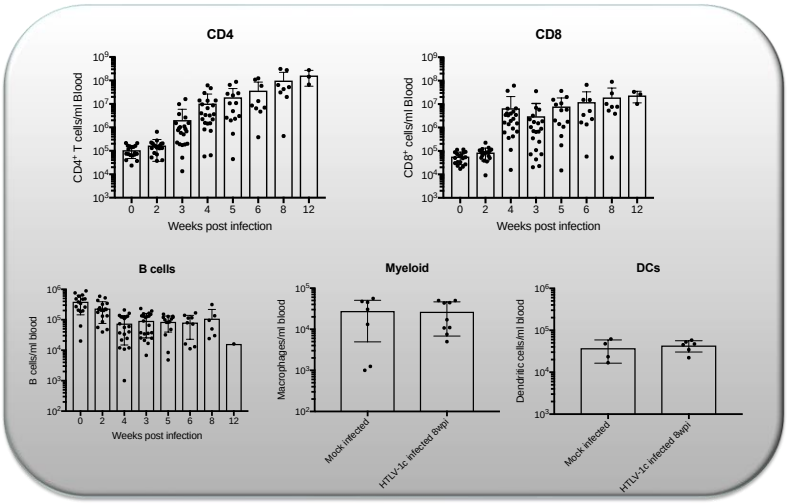
CD4⁺ and CD8⁺ T-cell expansion in HTLV-1c infected mice



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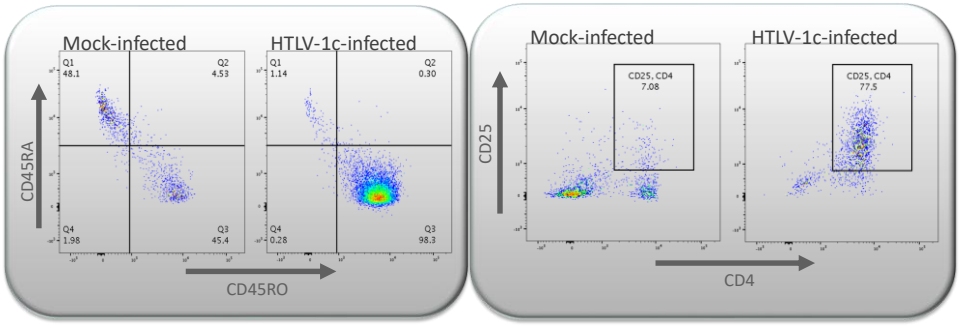
HTLV-1c-infected CD4⁺ T-cells have a mature phenotype and express CD25



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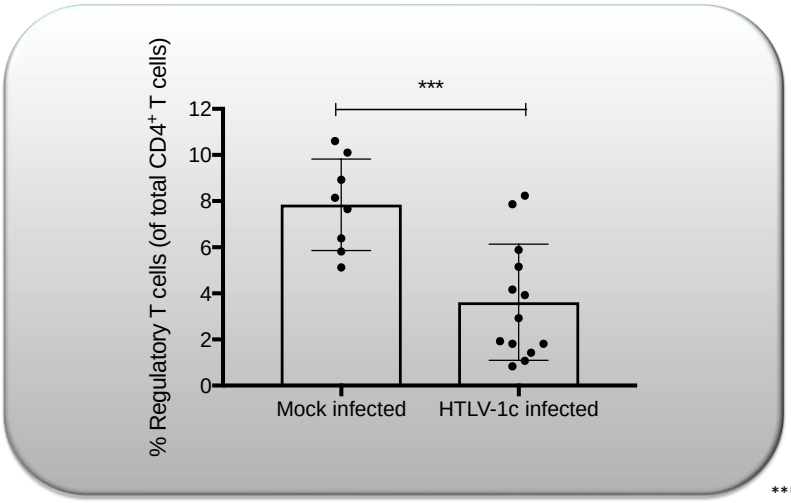
The proportion of T-regulatory cells decreases in HTLV-1c infected mice



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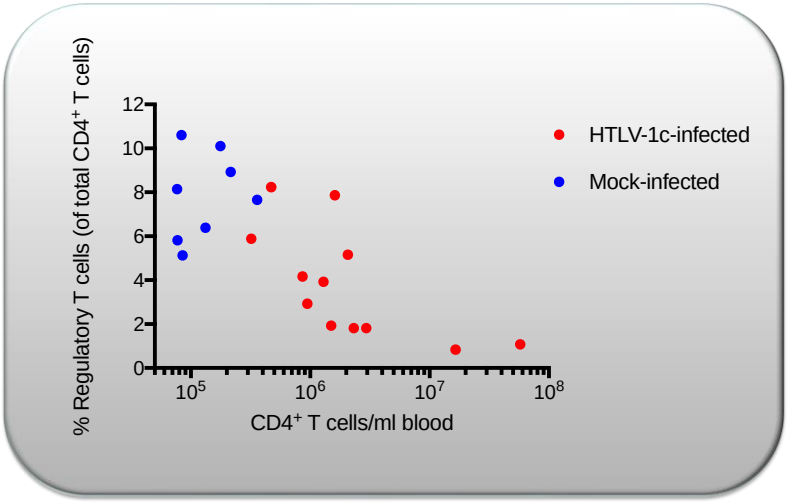

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Summary

- HTLV-1c-infected humanised mice recapitulate many aspects of human disease.
- An ideal tool to study the efficacy of therapeutic intervention strategies against HTLV-1c.
- Tenofovir alafenamide significantly reduces transmission of HTLV-1c in this model.
- This model aims to generate pre-clinical data to inform clinical trial design.
- Future work will focus on examining the efficacy of therapeutic interventions in established disease.

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