HIV persistence and latency in microglia: Single-cell transcriptome analysis of three humanized mice models of HAND shows viral responses to inflammatory signaling

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In Vitro and Animal Model Studies of HIV Persistence

# High levels of human microglia are observed in humanized IL34 mouse brains



#### CASE ESERVE SCHOOL OF MEDICINE CRISPR FOR CURE A Martin Delaney Collaboratory for HIV Cure

## The NOG-hIL34 mice produced the most genuine human mature microglia

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### Human microglia markers and HIV express in the humanized mice





#### Pathway Enrichment Analysis Of Differentially-expressed Genes

## Innate Immunity signature in microglia from HIV-infected mice is ameliorated by ART



- **Key question of research:** find the best animal model for HIV-associated neurocognitive disorder. Can we introduce human microglia in mouse brain and infect it with HIV?
- Key finding and take-home message: mice with introduced human blood cells and IL34 gene have the best human microglia cells in the brain. These microglia cells can be infected with HIV and respond to treatment with anti-retroviral therapy.
- **Next steps:** use new animal model of HIV-infected human microglia to study brain damage in mice and develop therapy for HIV-associated neurocognitive disorder.



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