CSF Memory B Cells Exhibit Distinct Molecular Footprints in Treated PWH

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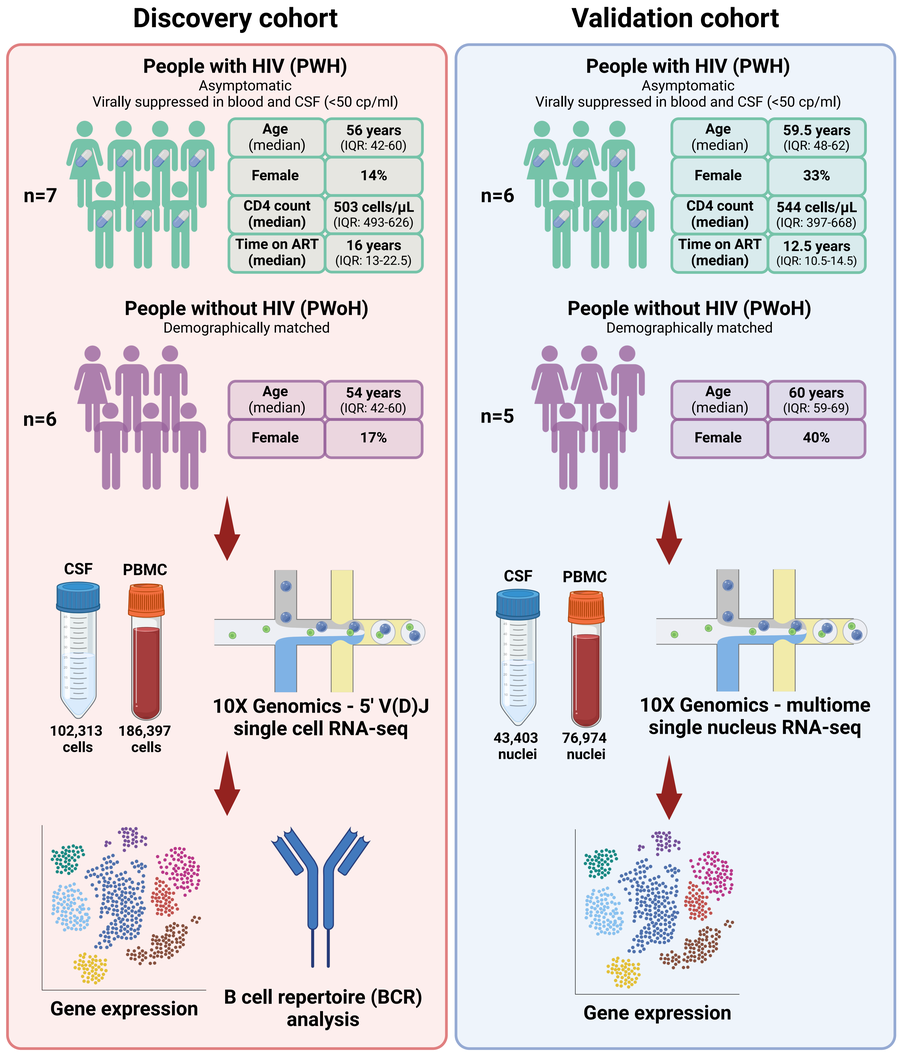
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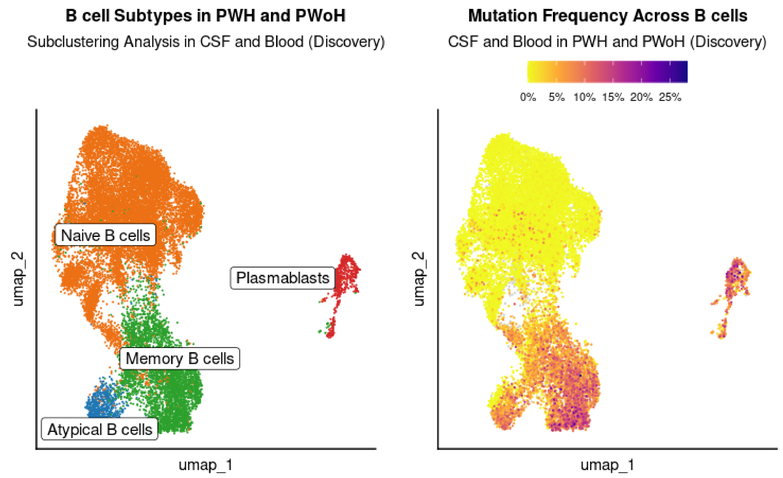
BACKGROUND

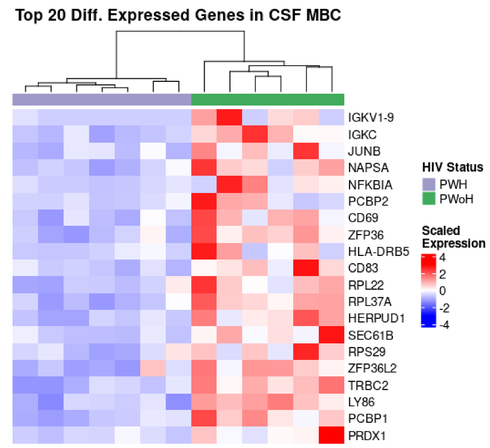
Effective B cell responses are crucial for long-term viral control. B cell dysfunction in the CNS may drive chronic antigen stimulation and altered cytokine environments, contributing to HIV persistence and neuroinflammation despite antiretroviral therapy.

METHODS & STUDY DESIGN

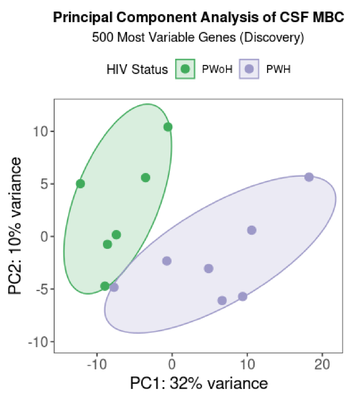


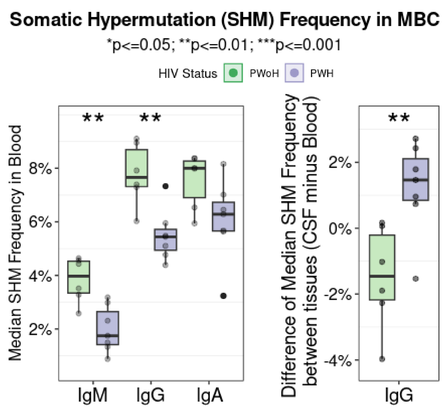
RESULTS

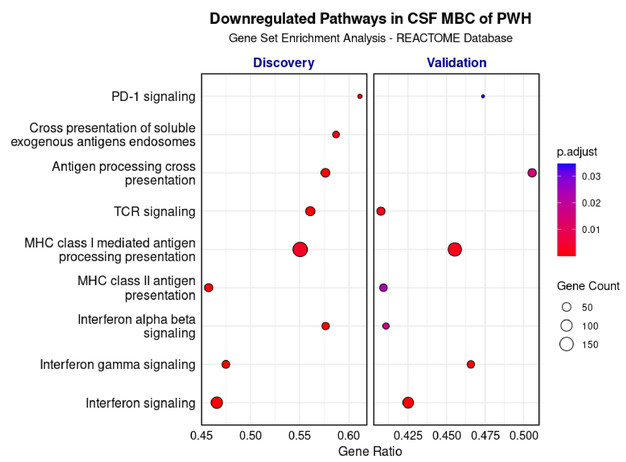




CSF Memory B cells (MBC) in PWH exhibit persistent functional changes despite longstanding ART, displaying inverted somatic hypermutation patterns between blood and CSF, along with transcriptional alterations suggestive of reduced antigen presentation capacities and interferon signaling.







CONCLUSIONS

These results suggest a persistence of impaired MBC in the CSF of PWH, which may reflect chronic antigen stimulation, impaired T-cell dependent B cell responses, and altered B cell trafficking between blood and CSF. Further studies on the CSF B cell repertoire may elucidate its role in HIV CNS persistence and neuropathogenesis.

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