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Immune Responses Associated With Mpox Viral Clearance in People With and Without HIV Coinfection

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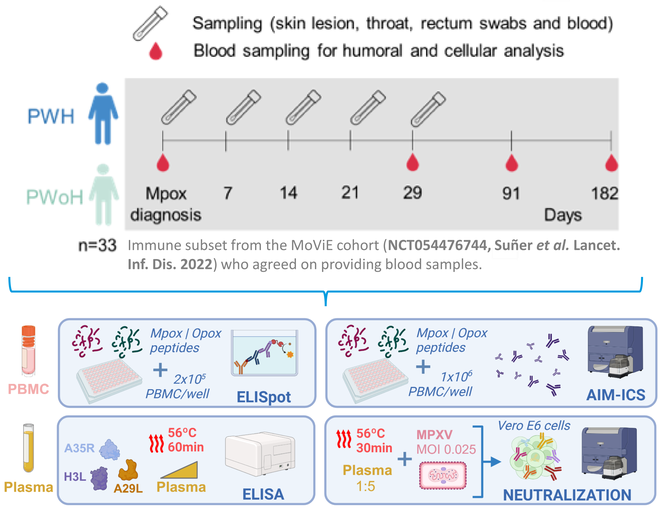
BACKGROUND

Mpox has disproportionally affected people with HIV (PWH) during the 2022 outbreak, with re-infections being reported. Although PWH have shown a prolonged Mpox illness and higher severity when compared to people without HIV (PWoH), magnitude and durability of responses are still poorly understood.

Here, we aimed to characterize and compare the **magnitude** and **durability** of both **T-** and **B-cell Mpox-specific immunity** between PWoH and PWH with good immune reconstitution, determining their impact in **disease severity** and **viral clearance dynamics**.

METHODS



Figures created with BioRender.com

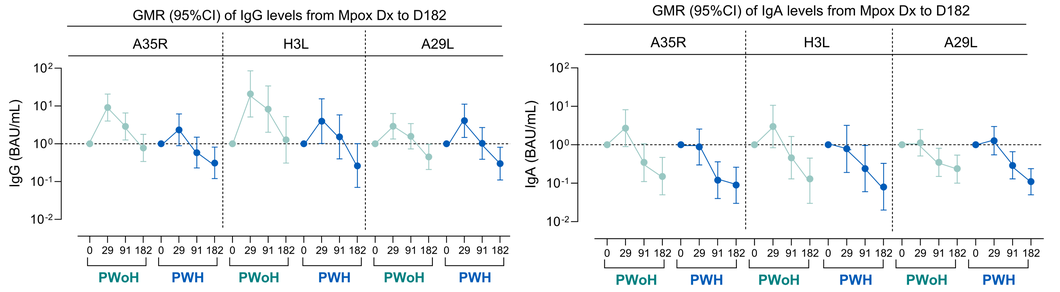
RESULTS 1

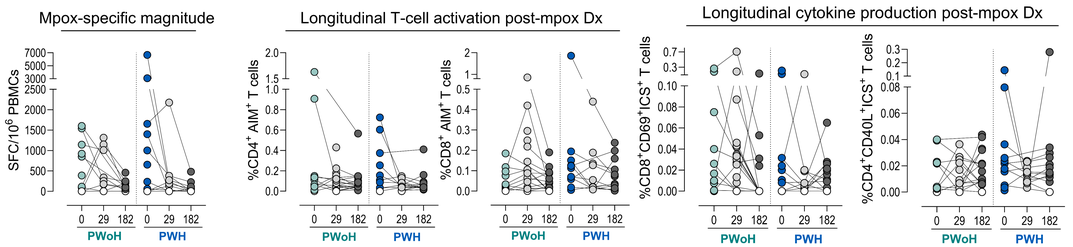
N=33 (all male)		PWoH n=19 (57%)	PWH n=14 (42%)
Age		32 (26 – 56)	40 (25 – 58)
	≥49 years, n(%)	4 (21%)	5 (36%)
Concomitant STI, n(%)		3 (16%)	6 (43%)
Current CD4		NA	777 (484 – 1,533)
ART-suppressed, n(%)[a]		NA	11 (78%)
Days since symptoms onset		5 (3 – 9)	6 (1 – 10)
Severity Score		9 (4 – 14)	9 (5 – 13)
Viral load at skin lesion (log_{10} DNA copies/mL)		7·2 (5·4 – 8·5)	7 (2·9 – 8·8)
Time to viral clearance at skin lesion (days)		28 (18 – 52)	23 (11 – 38)

Data are expressed as median (min-max) except where specified. PWoH: people without HIV; PWH: people with HIV. [a]Virological suppression was defined as a pVL 20 copies/mL.

Both PWoH and PWH had **similar viral clearance** and **clinical severity**.

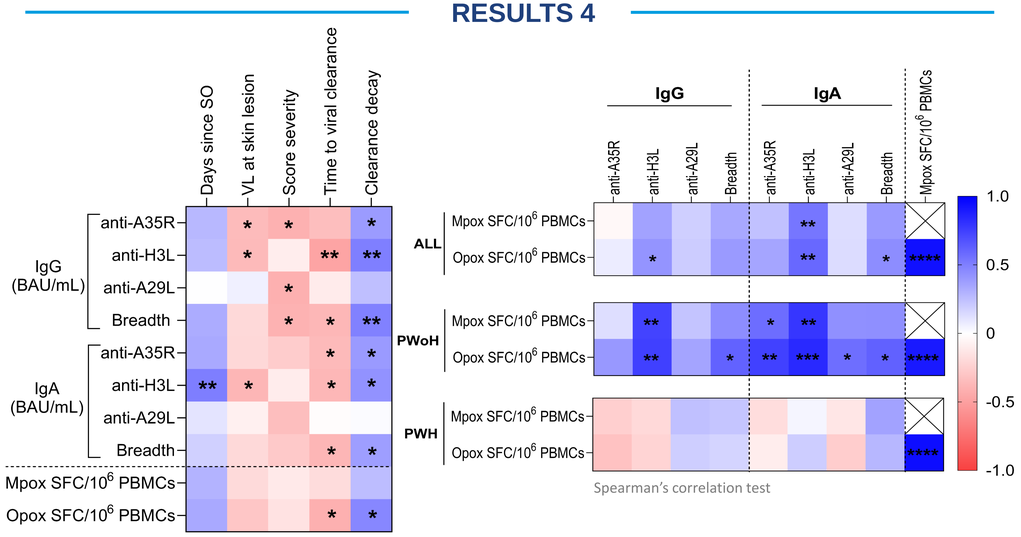
RESULTS 2





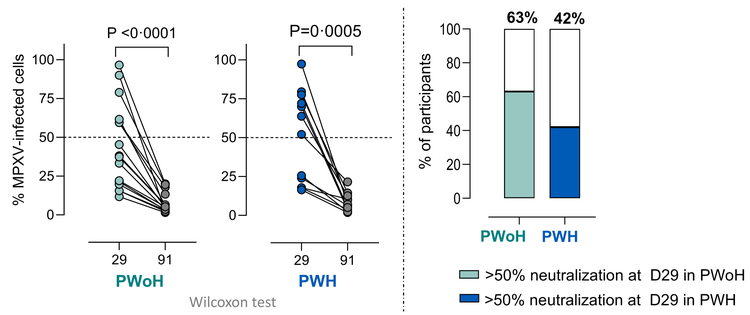
Although **PWH** had a **smaller increase** and a **faster wane of mpox-specific antibodies**, both groups had a **sustained T-cell** response **up-to 6 months** post-Mpox diagnosis.

RESULTS 4



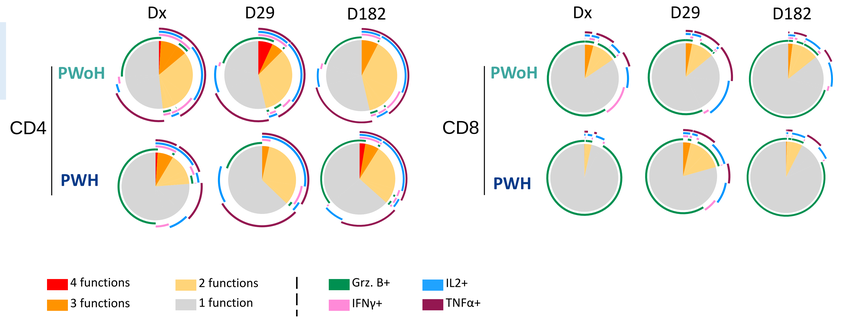
Stronger and polyclonal immunity was associated with a **milder illness** and a **faster viral clearance**. **PWH**, but not PWoH, showed a **less-coordinated cellular-humoral** mpox-specific immune response.

RESULTS 3



Both PWH and PWoH had **comparable neutralization** capacity, which was **fully reached 3 months post-diagnosis**.

RESULTS 5



PWH showed a **delay** to reach **similar polyfunctionality profile** than PWoH, with **higher prevalence of cytotoxic CD4+ T cells** at diagnosis. Monofunctional **GzmB+ CD8+** T cells were the most **prevalent across all time points** in both groups.

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