

HIV-1 soluble gp120 is associated with immune dysfunction and inflammation in individuals with undetectable Viremia from the Canadian HIV and Aging cohort study



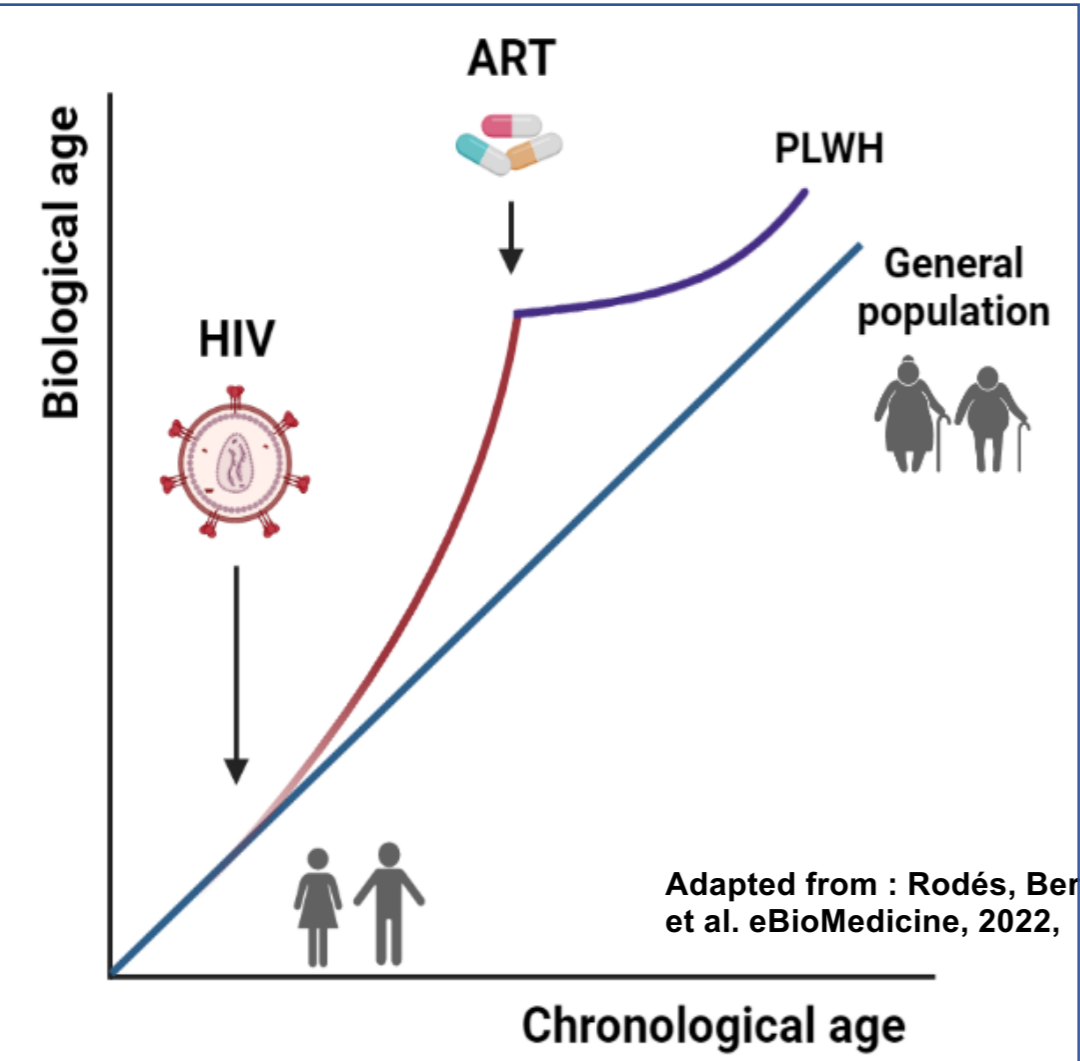
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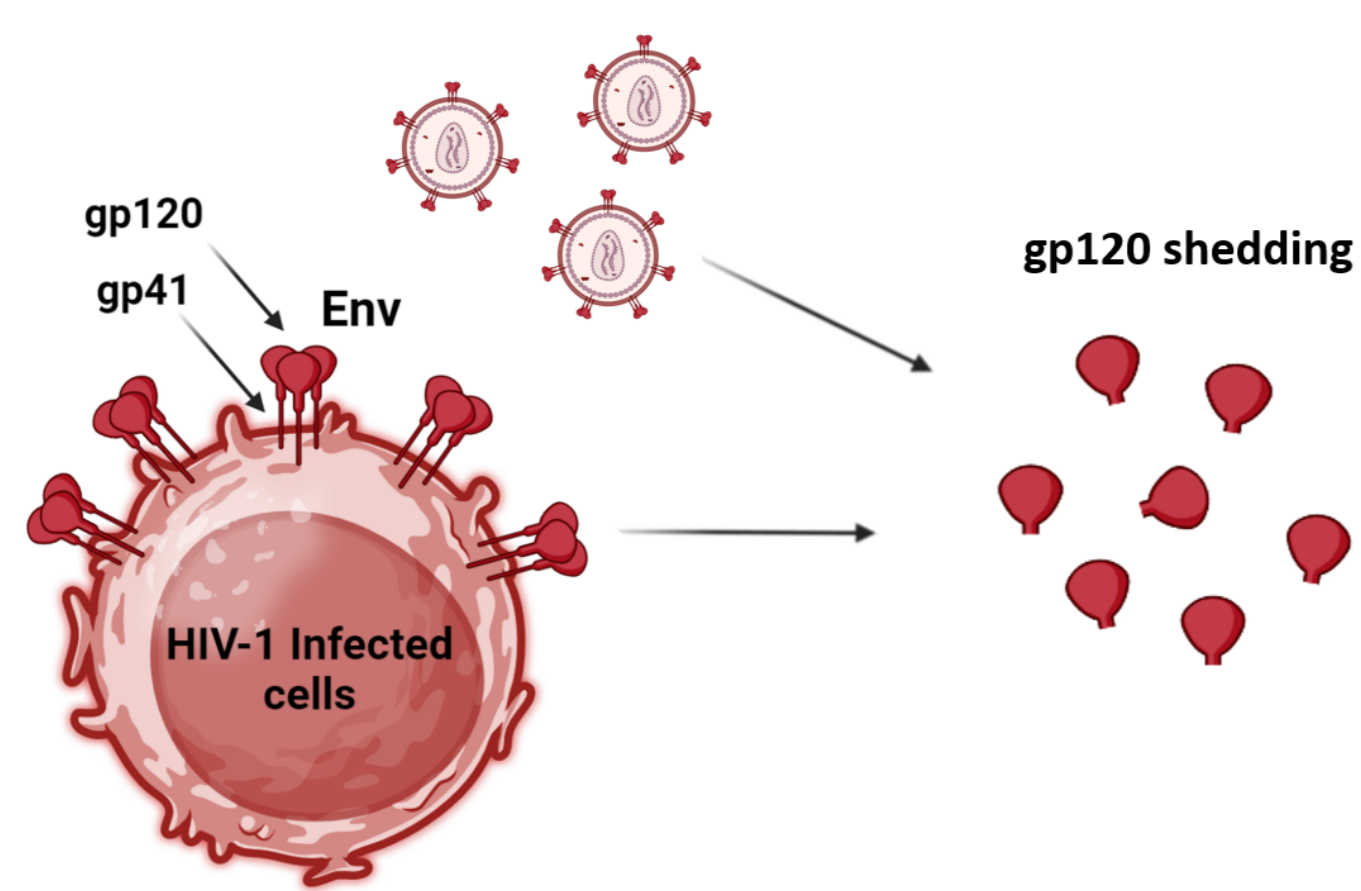
BACKGROUND

People living with HIV experience earlier onset comorbidities, which may be due, among other things, to persistent antigenic stimulation from HIV itself.

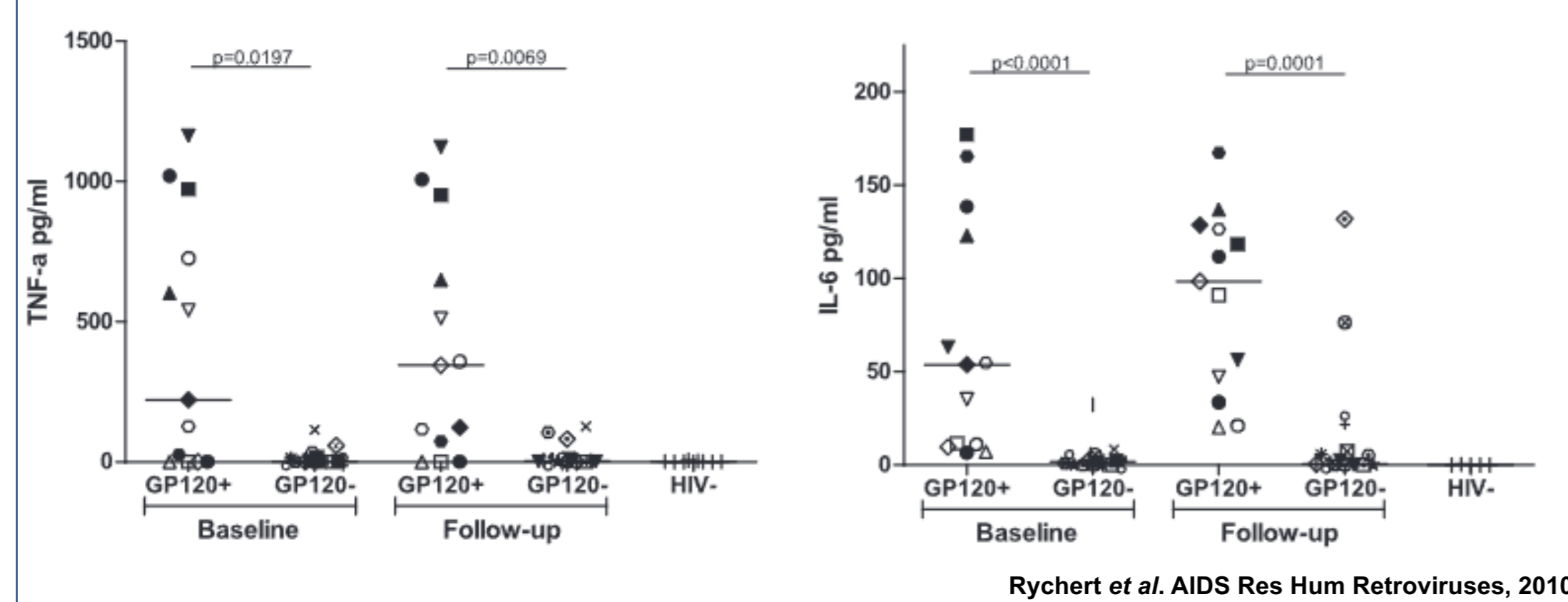
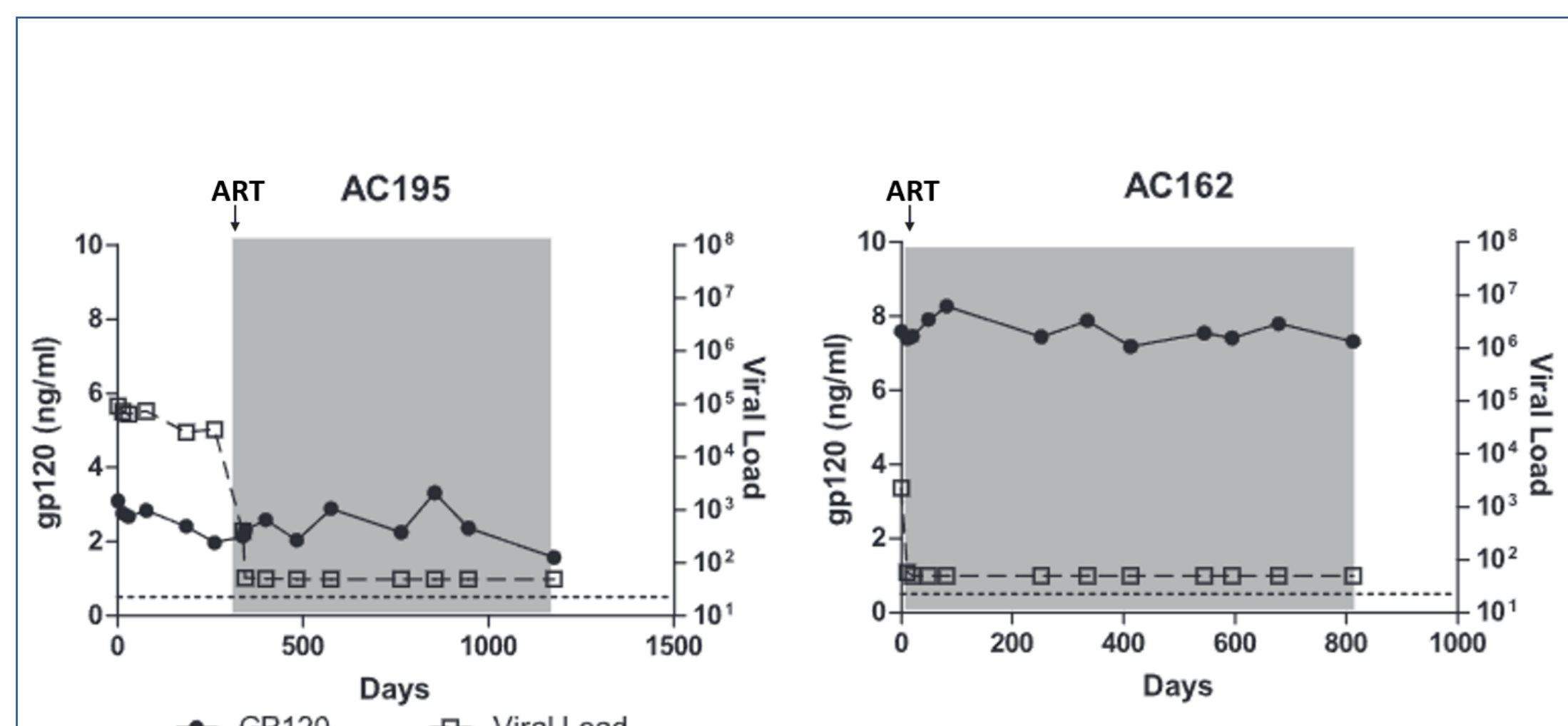


Adapted from: Rodés, Berta et al. eBioMedicine, 2022.

Attachment molecule glycoprotein 120 sheds from infected cells and viral particles

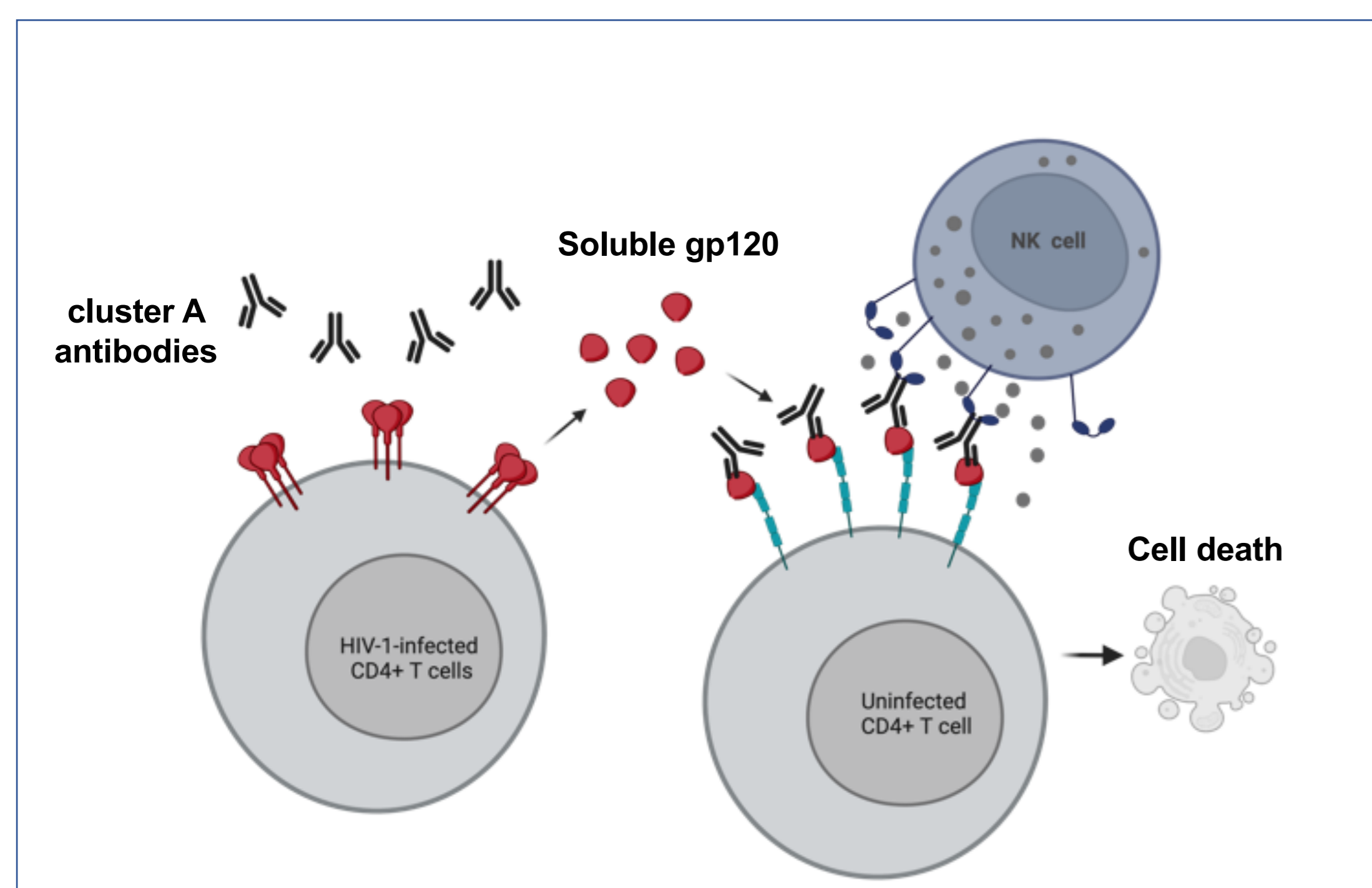


Soluble gp120 is detected in plasma even after ART initiation, and its presence is associated to inflammation in PLWH



Rychert et al. AIDS Res Hum Retroviruses, 2010

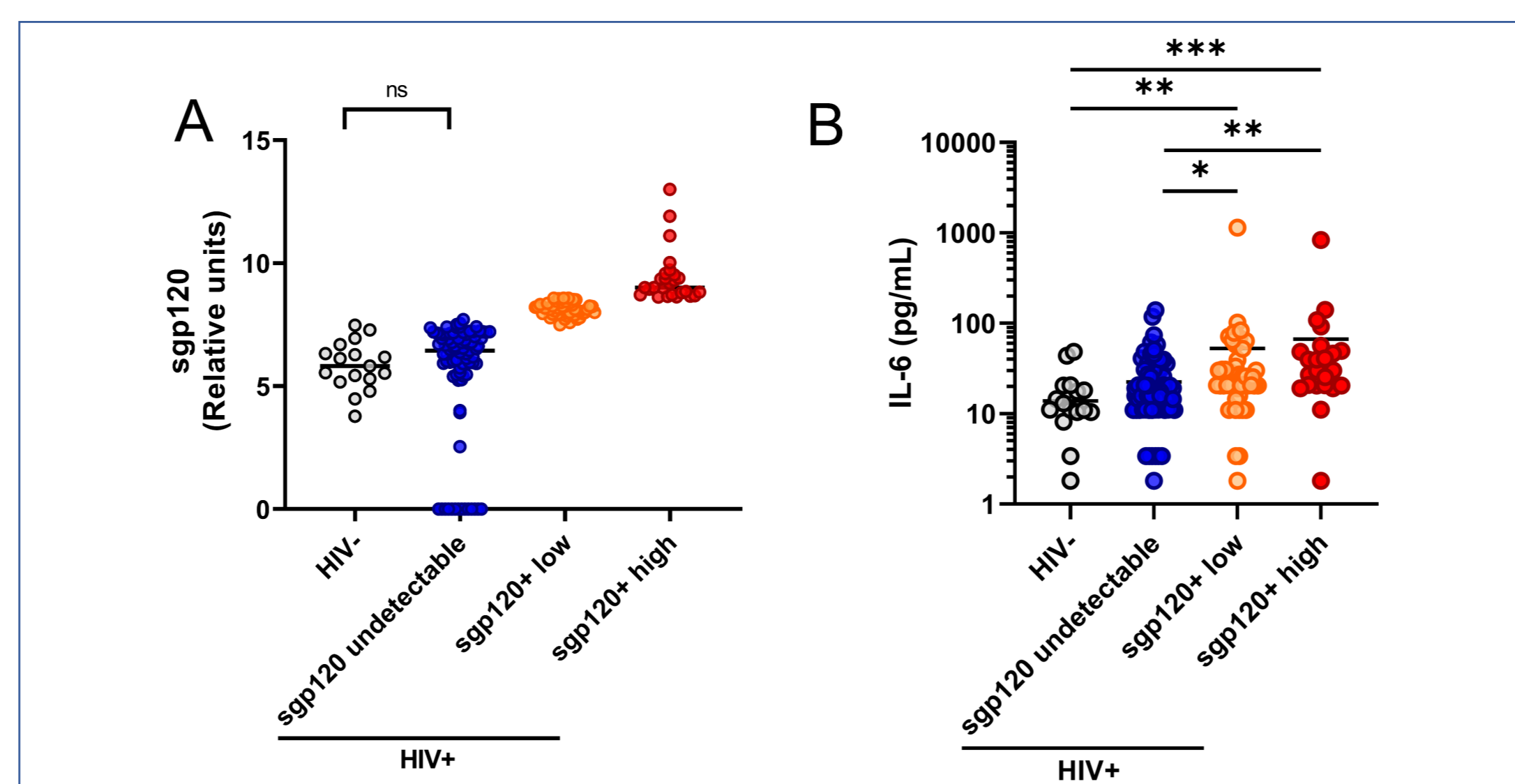
Shed gp120 sensitizes uninfected bystander cells to ADCC



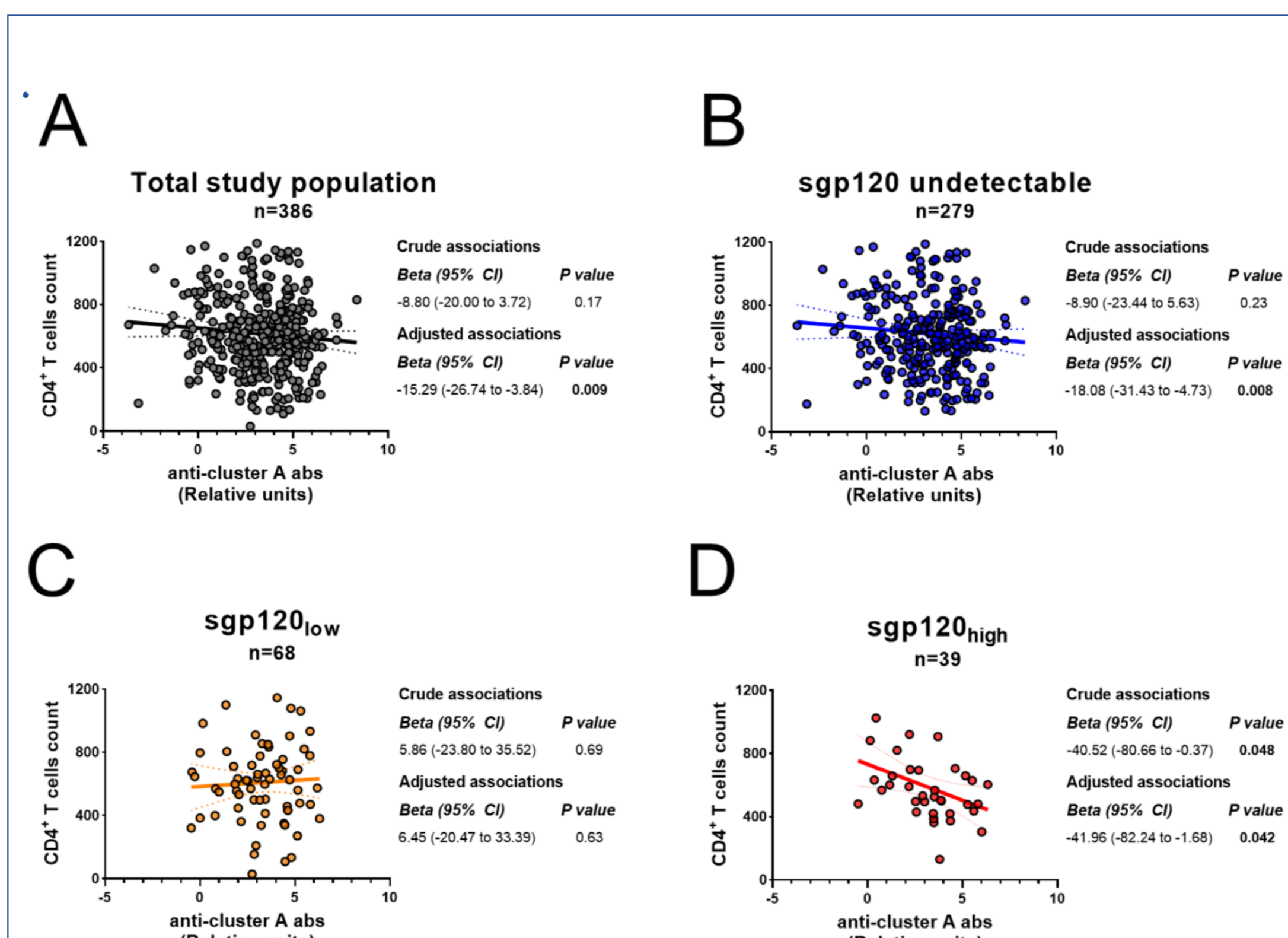
Richard et al. EBioMedicine 2016; Richard et al. mBio 2018, Richard et al. CCB 2023

RESULTS

Sgp120 is detectable in plasma in 107/386 (28%) of people living with HIV >40 with undetectable viremia, and is associated with IL-6 levels.

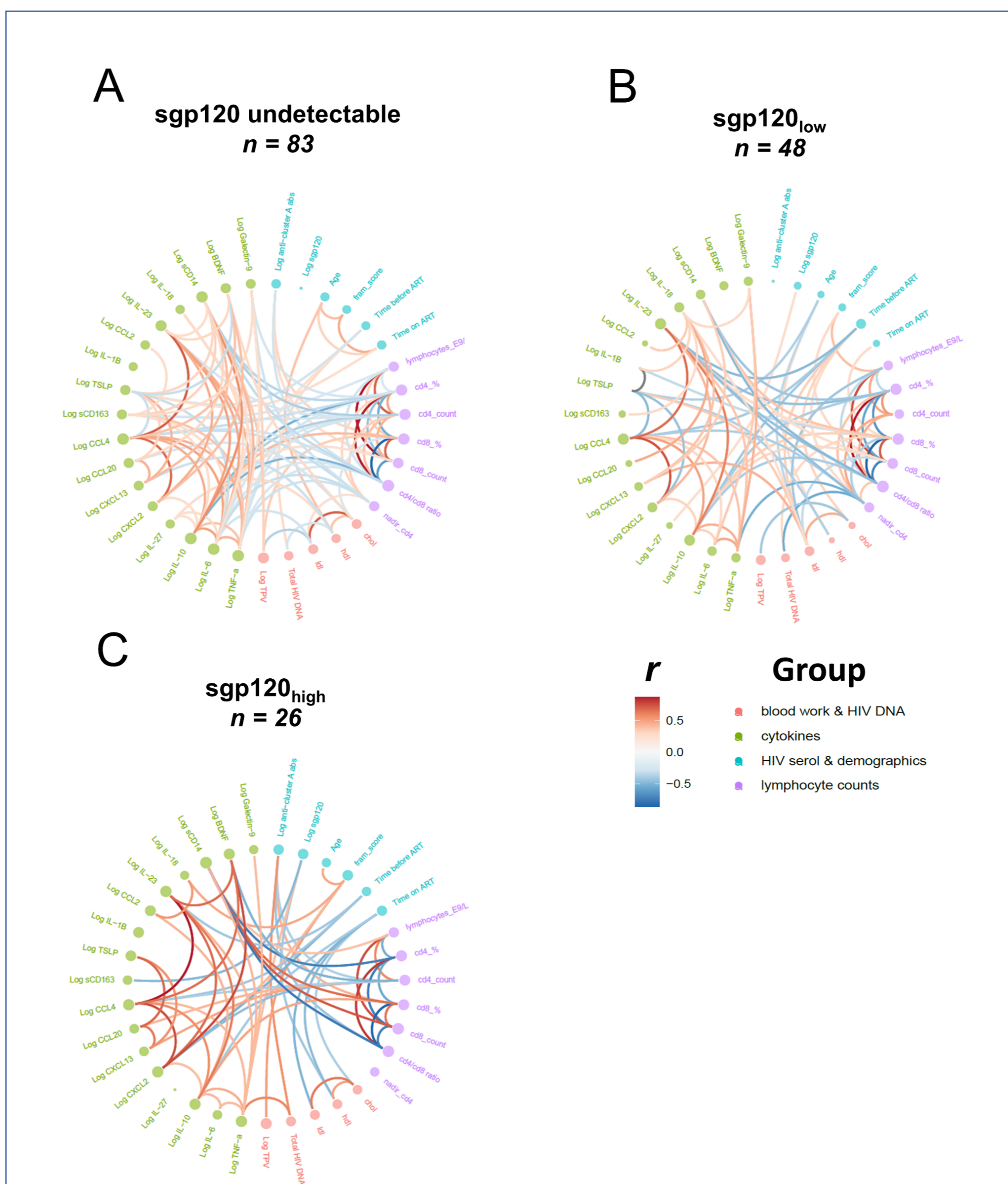


The association between Anti-cluster A antibodies and CD4 decline is modified by levels of sgp120

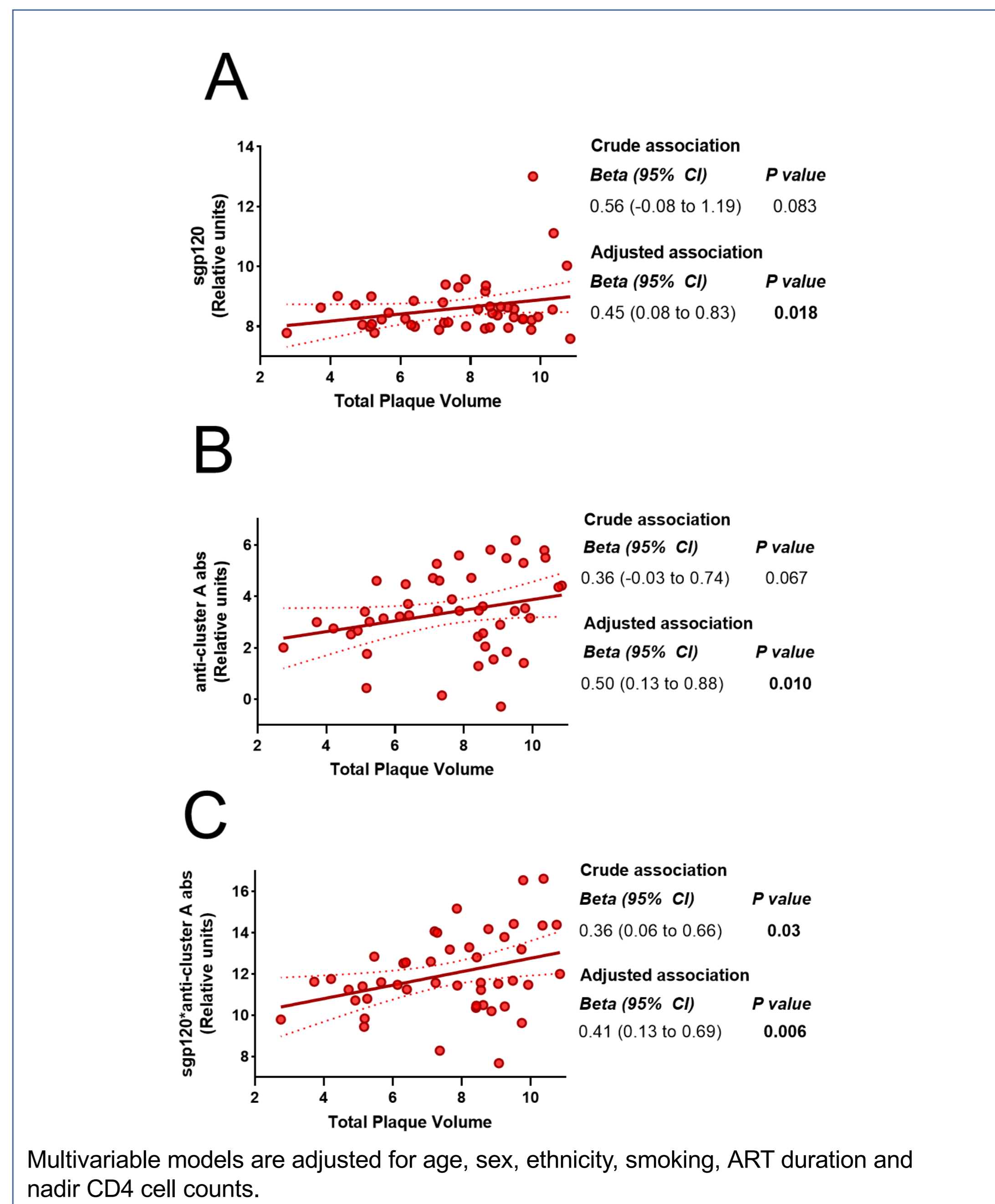


Multivariable models are adjusted for age, sex, ethnicity, smoking, ART duration and nadir CD4 cell counts.

Correlations between inflammatory biomarkers and markers of immune dysfunction is modified by levels of sgp120



Sgp120 and toxic anti-cluster A antibodies are associated with increased coronary artery plaque volume in people with presence of cardiovascular disease assessed by computed tomography coronary angiography (n=46)



Multivariable models are adjusted for age, sex, ethnicity, smoking, ART duration and nadir CD4 cell counts.

CONCLUSION

- Close to a third of PLWH with undetectable viral load have detectable sgp120 in plasma
- The presence of sgp120 and cluster A antibodies is associated with
 - Decreased CD4+ T cells and CD4:CD8 ratio
 - Increased levels of IL-6 and Total coronary plaque volume
- Soluble gp120 may contribute to immune dysfunction and sustained inflammation in a subset of PLWH. Whether drugs targeting sgp120 could mitigate HIV-associated comorbidities in PLWH warrants further studies.

ACKNOWLEDGEMENT



Schematics prepared with BioRender (Biorender.com)