

# The 29th Annual Canadian Conference on HIV/AIDS Research Le 29e Congrès annuel canadien de recherche sur le VIH/sida

Session: **BS2**: Friday May 1 – 15:00:17:00 – HIV Latency and Viral Reservoirs

Track: Basic Sciences

Subject: HIV Latency and Viral Reservoirs

Presentation Type: Oral

Title of Abstract: **Plasma CXCL13 Correlates with Reservoir Size in Long-term ART-treated People Living With HIV**

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## Abstract

**Background:** Follicular helper CD4 T-cells represent a major HIV reservoir compartment and contribute to HIV persistence despite antiretroviral therapy (ART). These cells activate germinal centre B-cells, while also secreting the B-cell chemoattractant CXCL13. Plasma levels of CXCL13 are associated with disease progression in people living with HIV (PLWH). Herein, we elucidate the relationship between CXCL13 and reservoir size in PLWH receiving antiretroviral therapy (ART).

**Methods:** Blood was collected from PLWH with early (EHI) (n=23) or chronic phase (CHI) (n=39) of infection. CHI was further subdivided into ART-naïve (CHI ART-) (n=8) and those receiving ART for a median of 15 years (CHI ART+) (n=31). CD4 T-cell count, CD4/CD8 ratio, HIV plasma viral load (VL) and total IgG were clinically assessed. CXCL13 and the pro-inflammatory markers IL-1 $\beta$ , IL-6, IL-8 and TNF- $\alpha$  were measured in plasma by ELISA. Integrated HIV DNA was determined through nested qPCR in sorted CD4 T-cells.

**Results:** Plasma CXCL13 levels negatively correlated with CD4 T-cell count (r=-0.42, p=0.003) and CD4/CD8 ratio (r=-0.47, p=0.006), and positively correlated with total IgG (r=0.47, p=0.03) and TNF- $\alpha$  (r=0.29, p=0.04) in all participants. In ART-naïve participants, CXCL13 positively correlated with VL (r=0.56, p<0.001). Furthermore, CXCL13 was associated with integrated HIV DNA levels in CD4 T-cells in CHI ART+ (r=0.44, p=0.01) but not in EHI (r=0.27, p=0.2) nor CHI ART- (r=0.52, p=0.2). Neither total IgG, IL-1 $\beta$ , IL-6, IL-8 nor TNF- $\alpha$  were associated with integrated HIV DNA in any group.

**Conclusion:** We showed for the first time that conversely to B-cell activation or pro-inflammatory markers, plasma levels of CXCL13 were associated with integrated HIV DNA in PLWH on long-term ART. This suggests that CXCL13 may play a role in the maintenance of HIV reservoirs. Future studies

on the role of CXCL13 in HIV persistence may pave the way towards interventions combatting this obstacle to a cure.