



Clinical Coordinating Center
Massachusetts General Hospital
55 Fruit Street, 5LON207
Boston, MA 02114

Data Coordinating Center
Massachusetts General Hospital
165 Cambridge Street Suite 400
Boston, MA 02114

Coronary Artery Plaque Composition and Severity Relate to the Inflammasome in People with Treated HIV

Samuel R. Schnittman, Douglas W. Kitch, Steven K. Grinspoon, and colleagues

[Published in OFID, 2023](#)

Background

People with HIV (PWH) have an increased risk of cardiovascular disease (CVD), which may partly be due to HIV causing more inflammation in the body. One possible cause of this inflammation may be related to the inflammasome – a complex of proteins in your cells that regulates inflammation.

Goals of the Study

In this analysis, we assessed the association between the inflammasome by measuring several proteins in this complex (caspase-1, IL-18, and IL-1b) and coronary artery plaque seen on coronary computed tomography angiography (CCTA). We performed this analysis in PWH enrolled in the Mechanistic Substudy of REPRIEVE at their entry visit. CCTA is an imaging method to see how much plaque is in the coronary arteries that supply blood to the heart, and there are several different ways to categorize plaque, including if it is vulnerable, the degree of stenosis (tightening) of the arteries, and how calcified (or hardened) the plaque is. The Leaman Score was designed to combine some of the different features of plaque seen on the CCTA into a single number that summarizes the overall plaque composition and severity.

➤ The participants:

- 752 participants (619 male)
- Median age: 50 years
- Median body mass index (BMI): 27.0 kg/m²

➤ The findings:

1. Higher levels of inflammasome proteins were associated with male sex, lower CD4:CD8 ratio, and HIV-1 viral load ≥ 400 copies/ml
2. Higher IL-18 and IL-1b were associated with a Leaman Score >5 . A score >5 has been associated with CVD and risk factors in the general population.
 - a. This was true even after adjusting for different participant features

In Summary: Proteins of the inflammasome were associated with Leaman Score, a score that summarizes the composition and severity of coronary artery plaque. In the future, we plan to understand how the inflammasome proteins relate to changes in plaque over time as well as cardiovascular events in PWH.