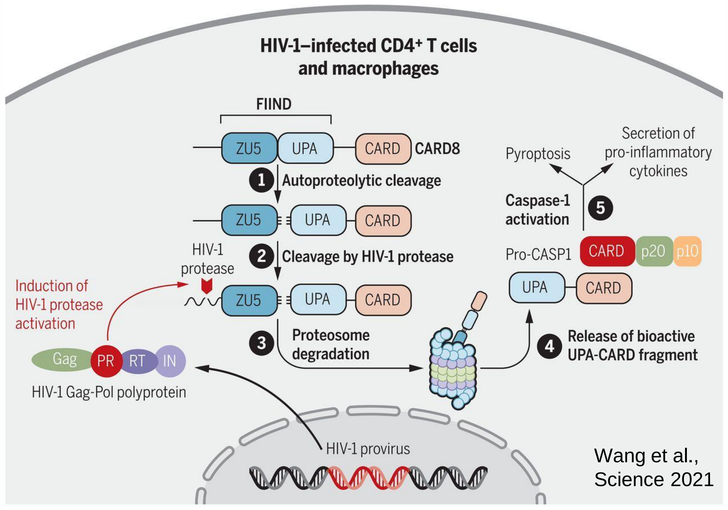
CARD8 inflammasome modulates HIV-1 infection in CD4⁺ T cells

Qiankun Wang，Liang Shan

Division of Infectious Diseases, Department of Medicine, Washington University School of Medicine, Saint Louis, MO, USA

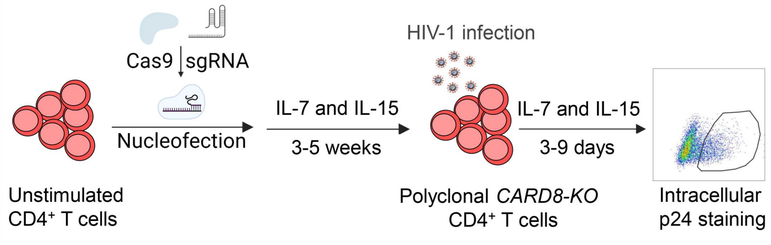
Introduction

CARD8 is an innate immune sensor that can be activated through proteolytic cleavage. Recently, we reported that induction of HIV-1 protease activation leads to CARD8 inflammasome-mediated pyroptosis of infected macrophages and CD4⁺ T cells. However, it remains unclear whether natural HIV-1 infection can activate the CARD8 inflammasome to trigger pyroptosis of CD4⁺ T cells and thereby modulate HIV-1 replication.



Wang et al., Science 2021

Methods



Results

Fig. 1 Loss of CARD8 leads to increased susceptibility to HIV-1 infection in unstimulated CD4⁺ T cells

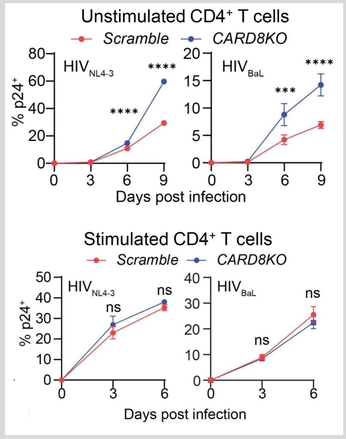


Fig. 2 Sensitization of CARD8 by DPP9 inhibitor suppresses HIV-1 infection

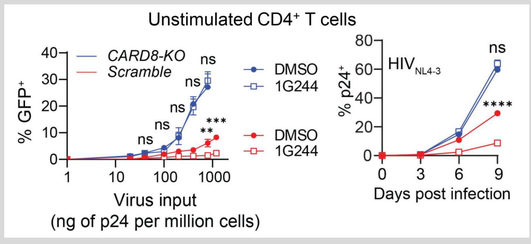


Fig. 3 TCR stimulation renders CD4⁺ T cells resistant to CARD8 activation

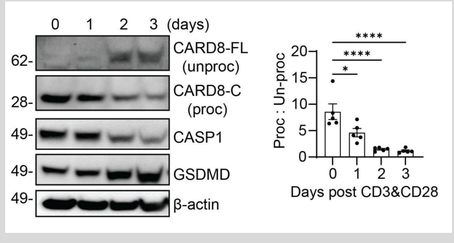
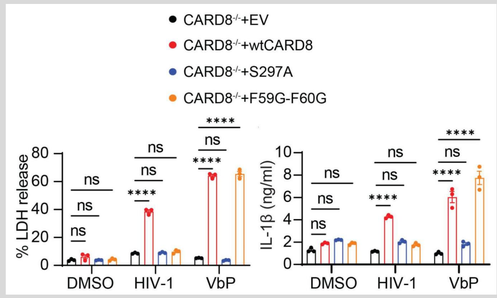


Fig. 4 HIV-1 infection-triggered CARD8 activation requires the N-terminal cleavage



Conclusions

- HIV-1 infection induces CARD8 dependent pyroptosis in unstimulated CD4⁺ T cell
- CARD8 inflammasome restricts HIV-1 infection in unstimulated CD4⁺ T cells

