

## **Abstract**

### **BACKGROUND:**

Chronic coinfection with herpes simplex virus type 2 (HSV-2) and human immunodeficiency virus (HIV) has been associated with an increased HIV viral load and more rapid disease progression, perhaps related to HSV-2-associated alterations in host immunity.

### **METHODS:**

Studies were nested within (1) a cross-sectional study of men coinfecting with HIV and HSV-2 and (2) women not infected with HIV, both before and after HSV-2 acquisition. HSV-2 infection status was determined by ELISA. HIV-specific CD8(+) T cell epitopes were mapped, and proliferation of HIV-specific cells was also assessed. Systemic inflammatory and regulatory T cell populations were assayed by flow cytometry.

### **RESULTS:**

The breadth of both the HIV-specific CD8(+) T cell interferon-gamma and proliferative responses was reduced in participants coinfecting with HIV and HSV-2, independent of the HIV plasma viral load and CD4(+) T cell count, and the magnitude of the responses was also reduced. HSV-2 infection in this group was associated with increased T cell CD38 expression but not with differences in the proportion of CD4(+) FoxP3(+) regulatory T cells. However, in women not infected with HIV, acquisition of HSV-2 was associated with an increase in the proportion of regulatory T cells.

### **CONCLUSIONS:**

HSV-2 coinfection was associated with reduced HIV-specific T cell responses and systemic inflammation. The immune effects of HSV-2 may underlie the negative impact that this coinfection has on the clinical course of HIV infection.