Resistance to HIV-1 infection among African sex workers is associated with global hyporesponsiveness in interleukin 4 production.

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We previously identified HIV-1 resistant prostitutes who remain persistently HIV-1 PCR- and antibody-negative despite continued heavy exposure to HIV-1 through sex work. We hypothesized that differences in virus-specific cytokine responses are associated with resistance vs. susceptibility to infection. Although polyclonal activation failed to reveal such differences, antigen-mediated activation of peripheral blood mononuclear cells (PBMC) in primary culture by using intact HIV$_{IIIB}$demonstrates that resistance is associated with enhanced virusd markedly reduced IL-4 responses relative to those seen in HIV-1 seropositive prostitutes (CDC stage A1, CD4>500/ml). No changes were detectable in HIV-stimulated interleukin (IL) 10 and IL-13 production, but IL-5 responses were somewhat increased in resistant sex workers. Moreover, the IL- 4 responses of HIV-1 resistant women to a panel of unrelated recall antigens were more than 20-fold reduced relative to HIV-infected prostitutes or those of healthy Kenyan women not involved in sex work. Thus, resistant women differ from seropositive-infected women and healthy controls by exhibiting a profound global hyporesponsiveness in their capacity to generate IL-4 responses.