

Abstract

The predominance of HIV-1 sexual transmission requires a greater understanding of the interaction between HIV-1 and the mucosal immune system. The study of HIV-1-exposed seronegative (HESN) individuals serves as a model to identify the correlates of protection and to aid in microbicide development. A total of 22 cytokines/chemokines were analyzed at the systemic and mucosal compartments in 57 HESN, 51 HIV-1-negative, and 67 HIV-1-infected commercial sex workers from Nairobi, Kenya. HESN individuals had significantly lower expression of monokine induced by interferon- γ (MIG), interferon- γ -induced protein 10 (IP-10), and interleukin-1 α (IL-1 α) in their genital mucosa compared with controls. HESN cytokine expression also distinctly correlates with mucosal antiproteases, suggesting that HESN individuals have a unique pattern of mucosal chemokine/cytokine expression, which may result in reduced trafficking at the mucosa. These data support the immune quiescence model of protection, whereby lower T-cell activation/recruitment at the mucosal compartment reduces HIV-1 target cell numbers and is an important component of natural protection from HIV-1.