

Abstract

Cellular immune responses characterized by interferon gamma (IFN-gamma) production enhance clearance and confer protective immunity against *Chlamydia trachomatis* infection but have not been simultaneously investigated in systemic and mucosal compartments. With use of the IFN-gamma enzyme-linked immunosorbent spot assay, we investigated immune responses to *Chlamydia* elementary body (EB) and 3 genotypically variant heat shock protein 60 (CHSP60) antigens using peripheral blood mononuclear cells and endometrial mononuclear cells obtained from a female sex worker cohort with high levels of exposure to *C. trachomatis*. Although we observed a marginally higher frequency of IFN-gamma responses to EB in peripheral blood mononuclear cells, compared with the frequency in endometrial mononuclear cells, the magnitudes of systemic and mucosal responses were similar except for preferential targeting of CHSP60 type 2 by endometrial mononuclear cells. Systemic and mucosal responses were highly correlated for EB and CHSP60 types 1 and 2 but not type 3. The frequency and magnitude of systemic responses specific for EB and CHSP60 type 1 were greater for CD4+ T cells than they were for CD8+ T cells, whereas preferential targeting by CHSP60 types 2 and 3 was undetectable. IFN-gamma response to CHSP60 type 1 by peripheral blood mononuclear cells was inversely correlated with systemic antibody titers to CHSP60 type 1. Systemic and mucosal IFN-gamma responses are correlated, with preferential systemic targeting of CD4+ T cells. Furthermore, CHSP60 type 1 response is largely CD4+ T cell mediated and follows discrete T helper 1 and T he