



MEETING ABSTRACT

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Functional impairment of Tax-specific but not CMV-specific CTLs in a minor population of asymptomatic HTLV-1-carriers

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Human T-cell leukemia virus type 1 (HTLV-1) causes adult T-cell leukemia (ATL) and HTLV-1-associated myelopathy/tropical spastic paraparesis (HAM/TSP) in a small percentage of infected individuals. ATL is often associated with general immune suppression and an impaired HTLV-1-specific T cell response. We previously found that a small fraction of asymptomatic HTLV-1-carriers (AC) also showed impaired T cell responses against the major target antigen Tax. However, it is unclear whether the impaired HTLV-1-specific T cell response in these individuals is an HTLV-1-specific phenomenon, or merely reflects general immune suppression. In this study, we investigated the function of Tax-specific cytotoxic T lymphocytes (CTLs) using tetramers consisting of major CTL epitopes and HLA-A0201, A2402, or A1101 in various HTLV-1-infected individuals possessing these HLAs. Tax-specific CTLs were detected in 33.3% (n=7/21), 100% (n=18/18), and 86.4% (n=19/22) of chronic ATL (cATL) patients, HAM/TSP patients, and AC, respectively. Tax-specific CTLs of all HAM/TSP patients tested proliferated well in culture and produced IFN- γ when stimulated with Tax peptides, while Tax-specific CTLs detected in cATL patients did not. In ACs, the Tax-specific CTL responses were retained in most cases. However, Tax-specific CTLs in one AC hardly produced IFN- γ and failed to proliferate or express a degranulation (CD107a) marker upon Tax peptide stimulation. In contrast, cytomegalovirus (CMV) pp65-specific CTLs in the same

donor could be fully activated by pp65 peptide stimulation. These findings indicated that HTLV-1-specific T cell function is impaired in a limited population in an HTLV-1-specific manner during an asymptomatic stage.

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