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Polyfunctional Mycobacterium tuberculosis-specific effector memory CD4+ T cells at sites of pleural TB

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Pleural tuberculosis (TB) is a common presentation of Mycobacterium tuberculosis (MTB) infection, and despite spontaneous resolution remains a strong risk factor for reactivation pulmonary TB in a majority of individuals. This study was undertaken to further understand the characteristics of immune cells at sites of pleural TB. A significant shift toward memory CD4+ cells with an effector phenotype and away from naïve CD4+ T cells in pleural fluid as compared to blood mononuclear cells was found. These data suggest that effector T cells are capable of migrating to sites of active TB infection and/or the differentiation to effector phenotype T cells in situ is highly amplified. Using multi-parameter flowcytometry analysis, a significant portion of MTB-specific CD4+ T cells in the pleural space were polyfunctional demonstrating two, three or four simultaneous functions including IFN-gamma, IL-2, TNF-alpha, and or MIP-1 alpha production. A greater proportion of these polyfunctional cells were of effector memory rather than central memory phenotype. The role of these polyfunctional MTB-specific CD4+ T cells at sites of pleural TB requires further study.

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