AiM> Vol.2 No.4, December 2012

OPEN ACCESS

IFN-γ-, IL-4-, IL-17-, PD-1-Expressing T Cells and B Cells in Peripheral Blood from Tuberculosis Patients

PDF (Size:903KB) PP. 426-435 DOI: 10.4236/aim.2012.24054

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ABSTRACT

Although the efficacy of tuberculosis (TB) vaccines is tightly linked to cell-mediated immunity, some functions of T and B cells in TB patients remain unclear. To address how *Mycobacterium tuberculosis* infection inhibits T effector responses, we assessed the proportions of T cell subsets and B cells in peripheral blood from pulmonary TB (PTB) patients, pleural TB (PLTB) patients, and healthy subjects (HS, who showed purified protein derivative (PPD)-positive reactions) with flow cytometry. Compared to HS, PTB and PLTB patients exhibited higher proportions of B cells and Th17 cells, and lower proportions of Th2 cells and ratios of Th1 to Th17 cells and of Th2 to Th17 cells. PTB patients had higher $CD4^+$ T cells and PD-1^+ $CD4^+$ T cells than HS. Newly diagnosed PTB patients (nPTB) had higher proportions of B cells than HS; in contrast, PTB patients subjected to effective treatments (oPTB) and HS shared similar proportions of B cells. oPTB patients had higher proportions of $CD4^+$ T cells, Th17 cells, and PD-1^+ $CD4^+$ T cells than HS, but this difference did not occur in nPTB patients. These findings suggest that shifting ratios of Th1 to Th17 cells may be beneficial for *M. tuberculosis* to amplify.

KEYWORDS

Mycobacterium tuberculosis; B Cells; T Cells; Th Cells; PD-1

Cite this paper

X. He, X. Huang, L. Xiao, J. Hao, J. Li, H. Chen, Y. Gao, Y. Zhao, C. Zhu and L. Jiang, "IFN-γ-, IL-4-, IL-17-, PD-1-Expressing T Cells and B Cells in Peripheral Blood from Tuberculosis Patients," *Advances in Microbiology*, Vol. 2 No. 4, 2012, pp. 426-435. doi: 10.4236/aim.2012.24054.

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