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Poster presentation

CD4+ T lymphocyte response to primary CMV infection

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Primary cytomegalovirus (CMV) infection induces rapid expansion of CMV-specific cytokine-producing CD4+ T cells but slow acquisition of proliferative responses. In utero transmission of CMV following maternal infection is associated with low proliferative responses. We have observed that pregnant women with primary CMV infection have high frequencies of CD4+ T cells expressing low levels of Bcl-2. The frequency of these cells returns to that of chronically infected subjects after the first months of infection. As Bcl-2 controls cell survival and proliferation, its regulation could play an important role in the control of CMV-specific CD4+ T cell responses. The aim of the project is to characterise the phenotype, the antigen specificity and the functions of Bcl-2_{low} CD4+ T cells in pregnant women with primary CMV infection. We have observed that Bcl-2_{low} cells are more activated and differentiated than Bcl-2_{high} cells. In particular, the low expression of Bcl-2 is tightly associated with loss of CD28 expression, decreased CD127 (IL-7 receptor α chain) expression and increased PD-1 expression. The low expression of CD127 is associated with low STAT-5 activation in response to IL-7 stimulation. These results indicate that primary CMV infection regulates the expression of Bcl-2 by CD4+ T lymphocytes and that this phenomenon is associated with the modulation of other surface receptors controlling cell proliferation. Further studies will define the functional consequences of these phenotypic alterations.