Retrovirology

Poster presentation

In Vivo Administration of Replication-Deficient Mutant HSV-1 Targets Professional APCs and Induces Efficient CD4+ T Helper Responses

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Both neutralizing antibodies and cytotoxic T cells are necessary to control a viral infection. However, vigorous T helper responses are essential for their elicitation and maintenance. These findings have critical implications in the design of vaccination strategies aimed at triggering and sustaining antigen specific $CD4^+$ in addition to $CD8^+$ effector immune responses. Here we show that a recombinant replication-deficient HSV-1 vector encoding the HIV-1 matrix protein p17 (T0-p17) is capable to infect professional APCs *in vitro* and *in vivo* without interfering with the endogenous MHC class II processing of the transgene encoded antigen. Moreover, we show that injection of T0-p17 in the mouse dermis generates a strong p17-specific $CD4^+$ T helper response preceding both cytotoxic and humoral responses. Importantly, T0-p17 infected peritoneal macrophages were capable to trigger a long-lasting expansion of p17-specific $CD4^+$ T cells *in vitro*. Because of their capability to infect professional APCs without interfering with their biological functions, replication-deficient HSV vectors are appealing candidates for the development of vaccines able to trigger strong T helper responses.