

The Midwinter Conference of Immunologists
Poster Abstract

Name:

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Title:

“Generation of Functional Antigen-specific T cells in Defined Genetic Backgrounds by Retrovirus-mediated Expression of TCR cDNAs in Hematopoietic Precursor Cells”

Abstract:

We have developed an alternative to transgenesis for producing antigen-specific T cells *in vivo*. In this system, clonal naive T cells with defined antigen specificity are generated by retrovirus-mediated expression of T cell antigen receptor cDNAs in RAG1-deficient murine hematopoietic precursor cells. These T cells can be stimulated to proliferate and produce cytokines by exposure to antigen *in vitro*, and they become activated and expand *in vivo* after immunization. IL-2-deficient T cells generated by this technique show decreased proliferation and cytokine production, both of which can be rescued by exogenous addition of this growth factor. Thus, retrovirus-mediated expression of T cell antigen receptor cDNAs in hematopoietic precursor cells permits the rapid and efficient analysis of the life history of antigen-specific T cells in different genetic backgrounds and may allow for the long-term production of antigen-specific T cells with different functional properties for prophylactic and therapeutic purposes.