TECHNOLOGY OFFER

NK cell-specific functions of STAT5

Description:

The aim of this project is to develop STAT5(f/f) Ncr1-iCreTg animals to study mice devoid of natural killer (NK) cells in peripheral lymphoid organs.

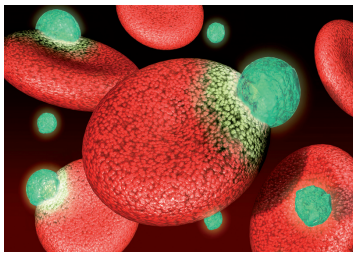
Natural killer (NK) cells are members of the innate immune system and represent a third lineage of lymphoid cells distinct from T and B lymphocytes. This study contributes to a better understanding of the role and function of NK-cells and tumour surveillance *in vivo*.

Ncr1-iCreTg mice can be used to generate STAT5(f/f) Ncr1-iCreTg animals which are good tools to study NK cell-specific functions of STAT5 (signal transducers and activators of transcription 5). STAT5(f/f)Ncr1-iCreTg mice are largely devoid of NK cells in peripheral lymphoid organs. In the bone marrow, NK-cell maturation was abrogated at the NK cell-precursor stage. Moreover, the *in vitro* deletion of Stat5 in interleukin 2-expanded NK cells was incompatible with NK-cell viability. *In vivo* assays confirmed the complete abrogation of NK cell-mediated tumor control against B16F10-melanoma cells. In contrast, T cell-mediated tumor surveillance against MC38-adenocarcinoma cells was undisturbed. The results show that STAT5 has a cell-intrinsic role in NK-cell development. Lack of NK cells did not influence the adaptive counterpart in tumour immune surveillance.

Advantages:

- New model to deplete NK-cells
- Role of NK cells in tumour surveillance in vivo
- STAT5 and NK-cell development
- Animal model to study STAT5 function and NK development

Publication: Blood. 2011 Feb 3;117(5):1565-73. A novel Ncr1-Cre mouse reveals the essential role of STAT5 for NK-cell survival and development. Eckelhart E et al. Institute of Pharmacology, Center of Physiology and Pharmacology, Medical University of Vienna, Vienna, Austria.



Collaboration:

- scientific interactions/interest

Keywords:

- Natural killer cells
- Ncr1
- Stat5

Patents:

- no patent submitted

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