



## Veronika Sexl, MD

Institute of Pharmacology  
Medical University of Vienna  
Währingerstr. 13A  
A-1090 Vienna, Austria  
Tel: +43-1-4277-64137  
Fax: +43-1-4277-9641  
Email: [veronika.sex1@meduniwien.ac.at](mailto:veronika.sex1@meduniwien.ac.at)  
Website <http://www.jak-stat.at>

### Research interests

The focus of the lab is to study signaling involved in leukemogenesis and NK cell-mediated tumor surveillance. Previous studies taught us that Bcr/Abl induced leukemia is exclusively subject to NK cell mediated tumor surveillance. We also identified the transcription factor Stat1 as key regulator for NK cell mediated leukemia surveillance.

### Thesis projects

#### Project 1: Role of Stat3 in NK cell mediated tumor surveillance

Stat3 has recently been implicated as key modulator of tumor surveillance regulating the interaction of tumor cells with the microenvironment and immune cells. Despite this novel exciting reports no information about the role of Stat3 for NK cell mediated tumor surveillance is available. In this project we will use leukemic mouse models that lack Stat3 in NK cells or leukemic cells only to investigate the effect of Stat3 for NK cell development., NK cell biology and leukemia surveillance.

#### Project 2: Role of VEGF in NK cell mediated tumor surveillance

Preliminary data of our laboratory revealed that NK cells secrete VEGF. In addition, we found that NK cells harboring a point mutation in the transcription factor Stat1 (Stat1<sup>S727A</sup>) are hyperactive and do produce significantly higher amounts of VEGF than wild type NK cells. In this project we therefore aim to delineate the function of VEGF secretion for NK cells and NK cell mediated tumor surveillance. We propose a model where NK cells initially block tumor development by lysing tumor targets cells. At later stages NK cells promote tumor development by secreting VEGF.

The employed methods comprise a broad spectrum of methods including mouse work, tissue culture, biochemical and molecular biology, cell biology, FACS analysis and Immunohistochemistry.

### Selected publications

Hölbl A, Schuster C, Kovacic B, Zhu B, Wickre M, Hoelzl M, Fajmann S, Grebien F, Warsch W, Stengl G, Hennighausen L, Poli V, Beug H, Moriggl R, **Sexl V**. Stat5 is indispensable for the maintenance of bcr/abl positive leukaemia (2010). *EMBO Mol Med*, 2(3):98-110.

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