



# NSI Meeting Announcement

Date: Thursday, February 1<sup>st</sup>, 15:15 – 16:00

Venue: Seminar room A3.3067, Rikshospitalet

## Guest lecture

by

**Dr James Di Santo**

**Cytokines and Lymphoid Development Unit, Institut Pasteur, Paris,  
France**

## ***“GATA-3: sealing T cell fate and splitting NK subsets”***

### **Abstract**

In the immune system, the zinc-finger transcription factor GATA3 has essential roles in T cell specification,  $\alpha\beta/\gamma\delta$  lineage choice, CD4/CD8 thymocyte selection and in the differentiation of T<sub>H</sub>2-polarized T cells. Still, the mechanisms by which GATA3 promotes these varied effects are only poorly understood. We have focused on the role of GATA3 in early thymocyte progenitors, and have identified the developmental block in thymocyte differentiation *in vivo* and *in vitro* that originates from GATA3 KO hematopoietic precursors. In the absence of GATA3, T cell precursors reach the DN2 stage and bear classical hallmarks of committed T cell progenitors. Nevertheless, GATA3 KO DN2 cells (unlike WT DN2 cells) retain substantial B cell potential, suggesting that GATA3 is an essential co-factor with Notch in T-lineage commitment. One target of GATA3 transcriptional activation in early thymocyte precursors is CD127, the IL-7 receptor  $\alpha$  chain. We found that thymic (but not splenic) NK cells show enhanced GATA3 and CD127 expression and require these molecules for their generation, thereby identifying thymic NK cell development as distinct from the classical bone marrow-derived pathway. Thymic-derived NK cells seed the LN and demonstrate peculiar phenotypic and functional properties that are reminiscent of the CD56<sup>hi</sup>CD16<sup>-</sup> subset of human NK cells. We show that human NK cell subsets differentially express GATA3 and CD127. Based on these observations, we propose that thymic and bone marrow-derived pathways of NK cell development generate functional heterogeneity within this innate lymphocyte subset.

**Refreshments will be served from 15:00**

**Welcome all!**



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