# Journal Club

Stephanie Ganal-Vonarburg

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# Paper #1

Article

Cell

## The Spectrum and Regulatory Landscape of Intestinal Innate Lymphoid Cells Are Shaped by the Microbiome

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# Highlights

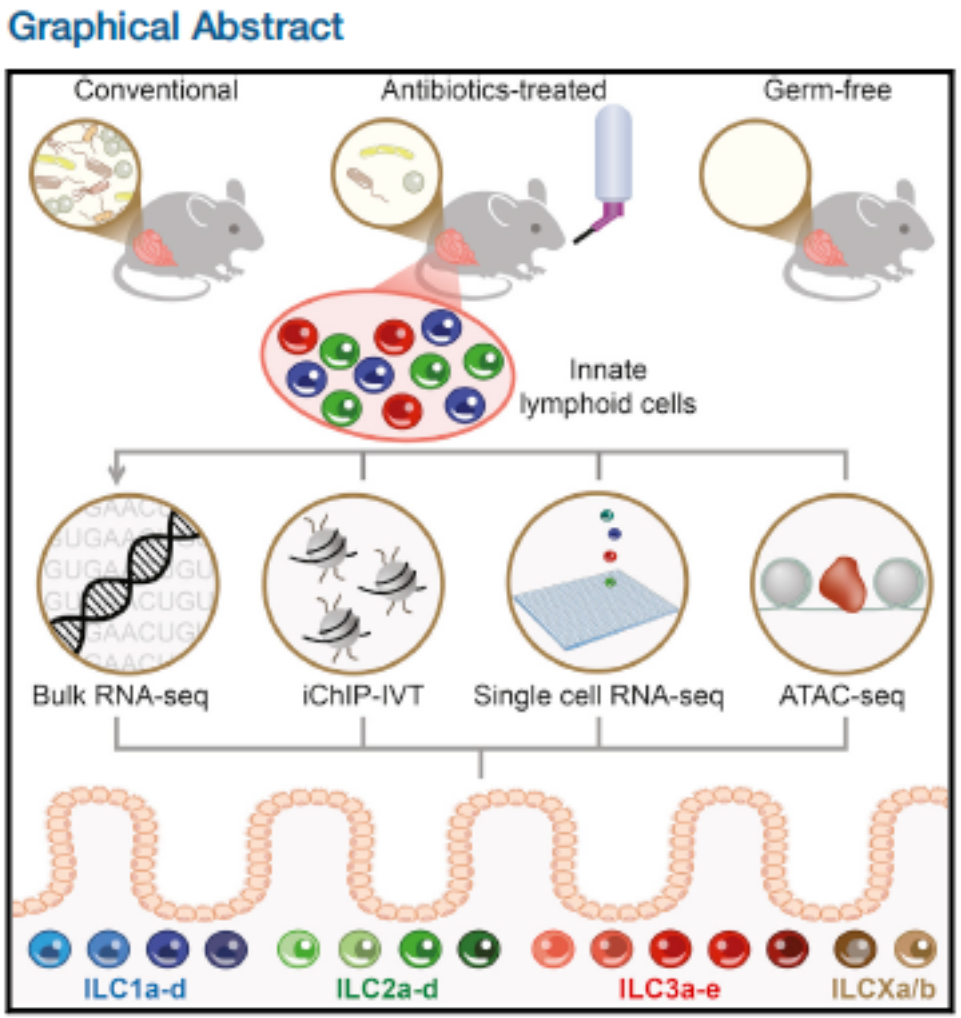
- Comparison of trancriptomic and epigenetic (ChIP) phenotype of intetsinal innate lymphoid cell subsets: ILC1, ILC2 and ILC3

- Single cell RNA-Seq follwoing FACS-sorting and individual cell-indexing *(Paul et al., Cell, 2015)*

- There is functional compartmentalization within the three main ILC subsets:
  - ILC1a-d
  - ILC2a-d
  - ILC3a-e
  - ILCXa/b

- The commensal microbiota impacts on gene expresssiomn and epigenetic landscape of the individual ILC substes (ABX, germ-free)
  - Acquisition of ILC3-like expression profile in ILC1 and ILC2 in absence of microbiota
  - Less plasticity of ILC3 → ILC1 in absence of microbiota

# Graphical abstract



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# Paper #2

nature microbiology

ARTICLES

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## Antibiotic-mediated gut microbiome perturbation accelerates development of type 1 diabetes in mice

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# Highlights

- Pulsed therapeutic antibiotic treatment (PAT) in early life increases T1D incidence in the NOD mouse model

- PAT alters ileal gene expression and metabolome in NOD mice

- PAT leads to transient reduction in phylogenetic diversity and community structure of the microbiota

- Certain genera can be used to predict if PAT NOD mice develop diabetes

- **HYPOTHESIS:**

PAT in eraly life → low diversity(antigen stimulation → weak intestinal barrier → More translocation of bacteria/metabolites → systemic inflammation → T1D

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