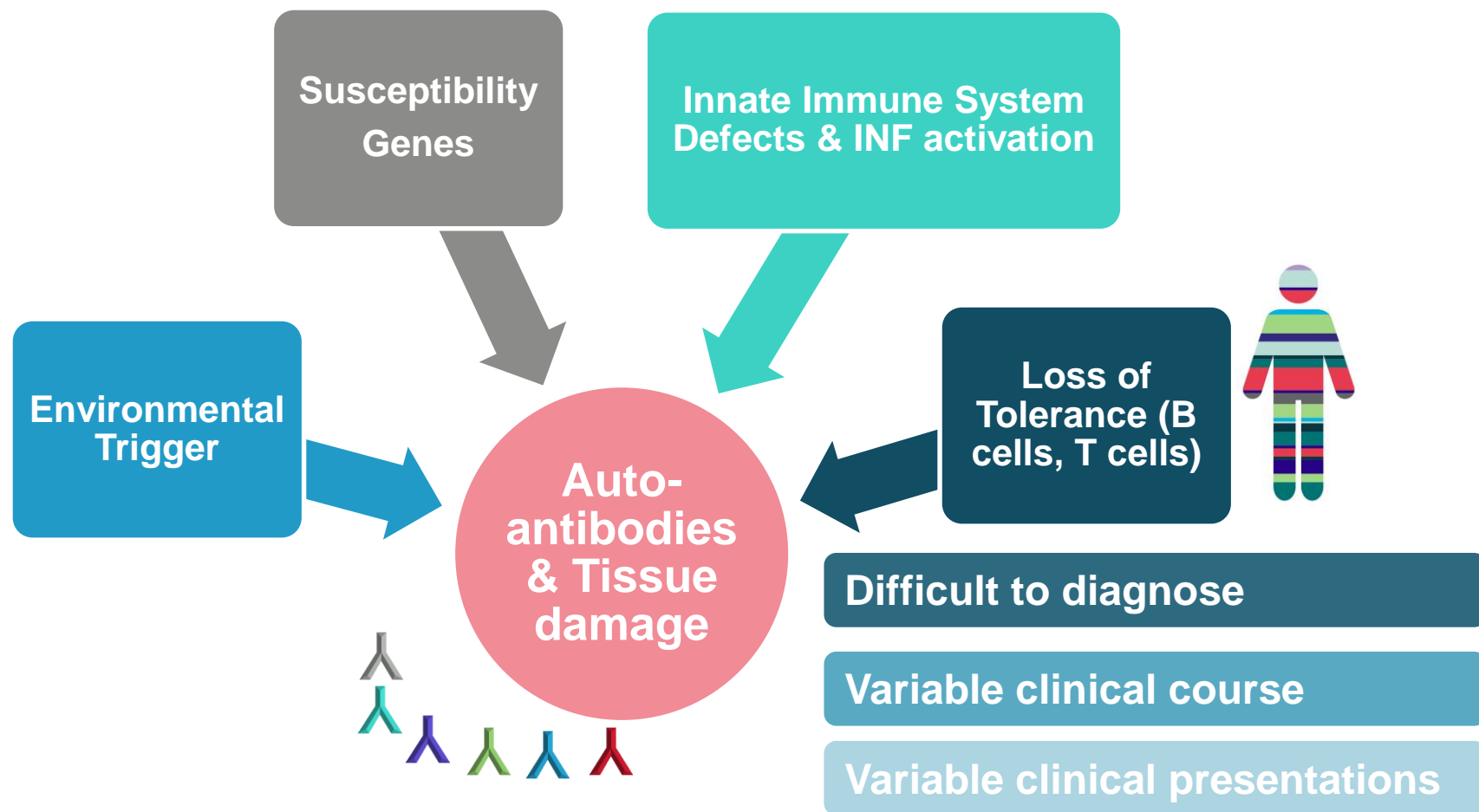




**Multiparametric detection of autoantibodies in Systemic Lupus Erythematosus (SLE) enables definition of SLE Patient Subgroups**

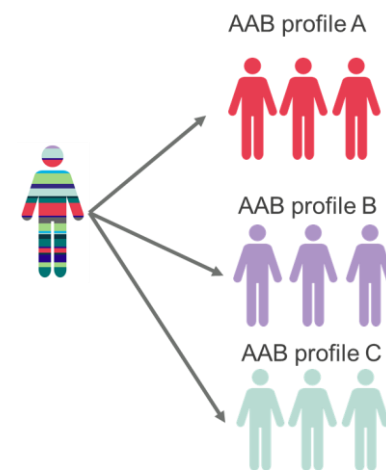
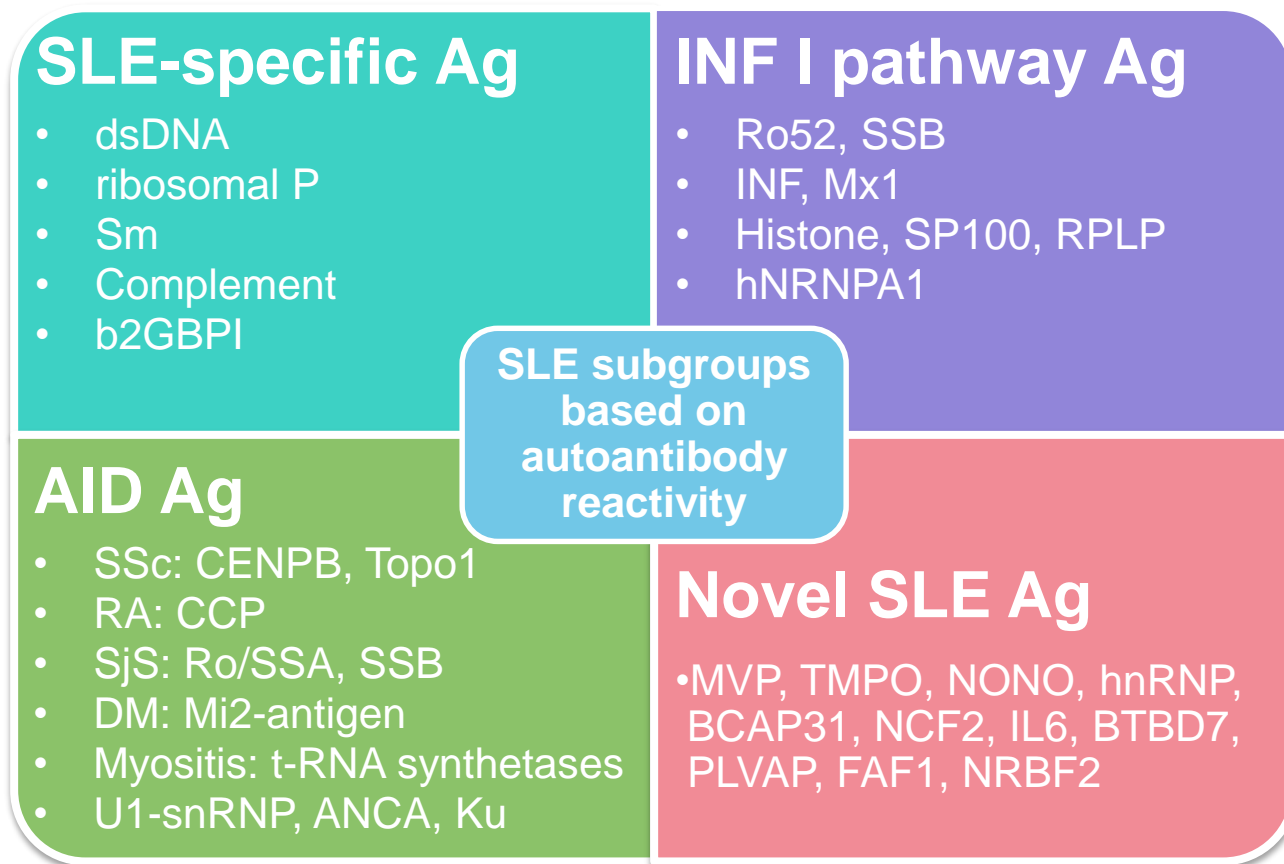
Petra Budde, Hans-Dieter Zucht, Heike Göhler, Petra Rengers, Klaus Marquart, Stefan Vordenbäumen, Peter Schulz-Knappe and Matthias Schneider

# Challenges in the Development of SLE Drugs



Can we define more homogeneous SLE patient populations using autoantibody marker ?

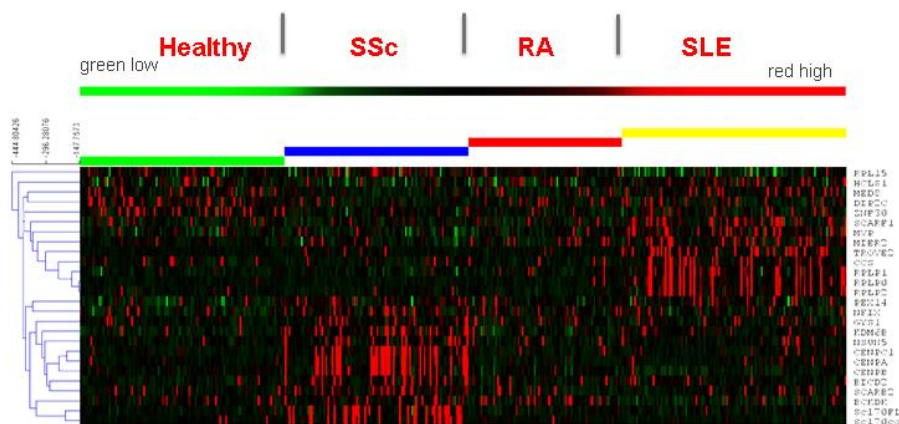
# Multiplex NavigAID SLE 86 Antigen Array



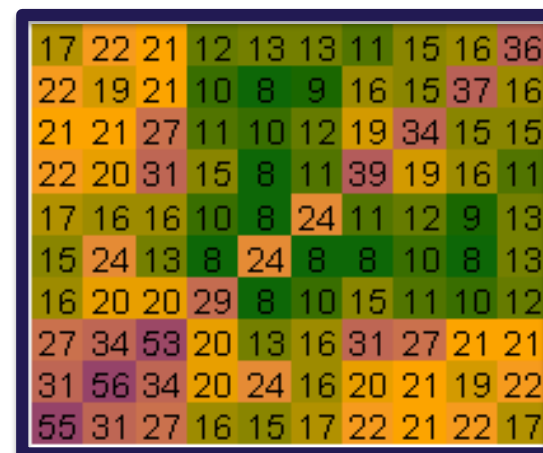
- Antigen selection based on discovery and validation in >700 SLE
- Novel antigens associated with innate immune response pathways

# From Single Marker to Patient Subgroups

Classical Approach:  
Heatmap of single marker

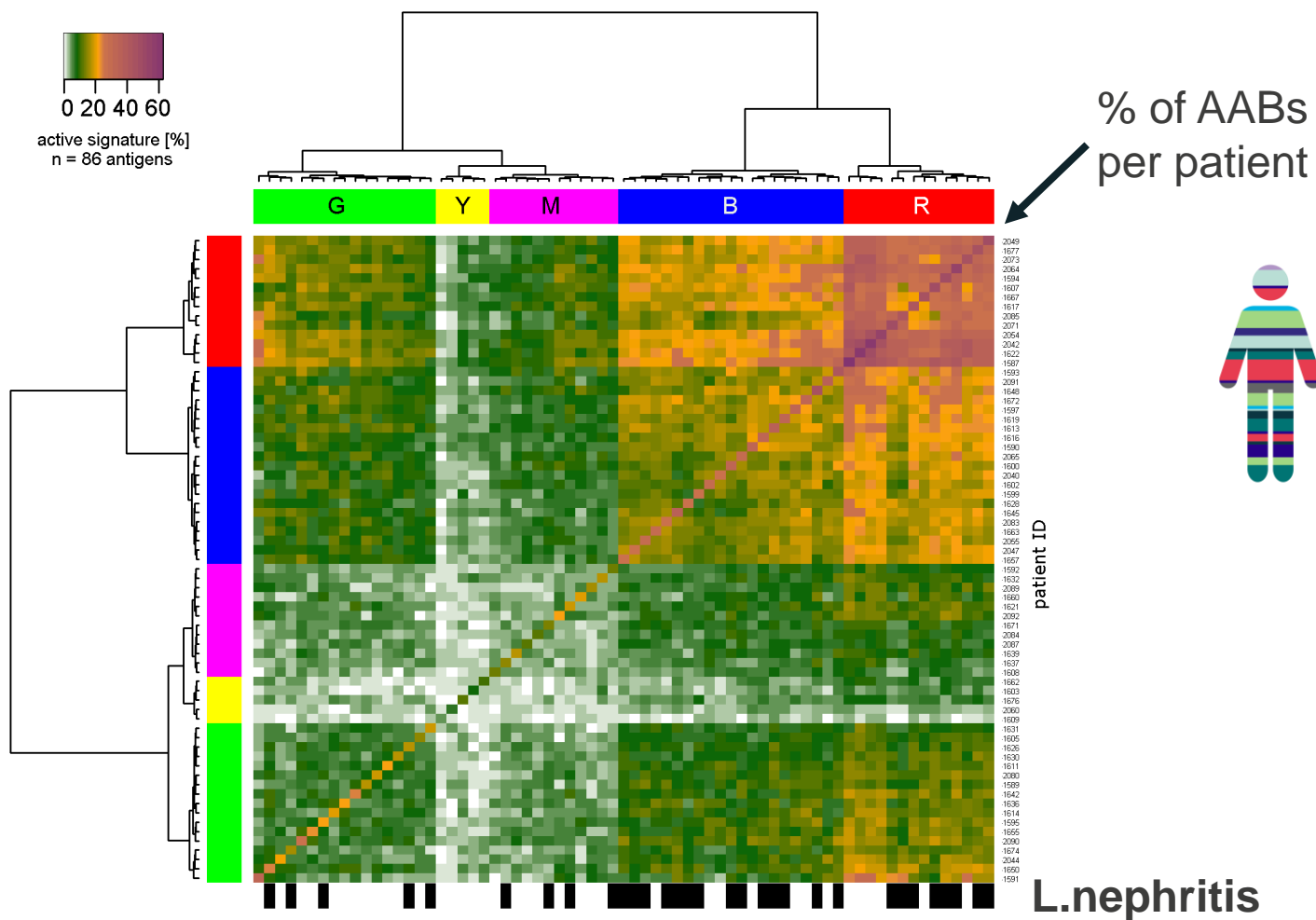


Heatmap of autoantibody prevalence



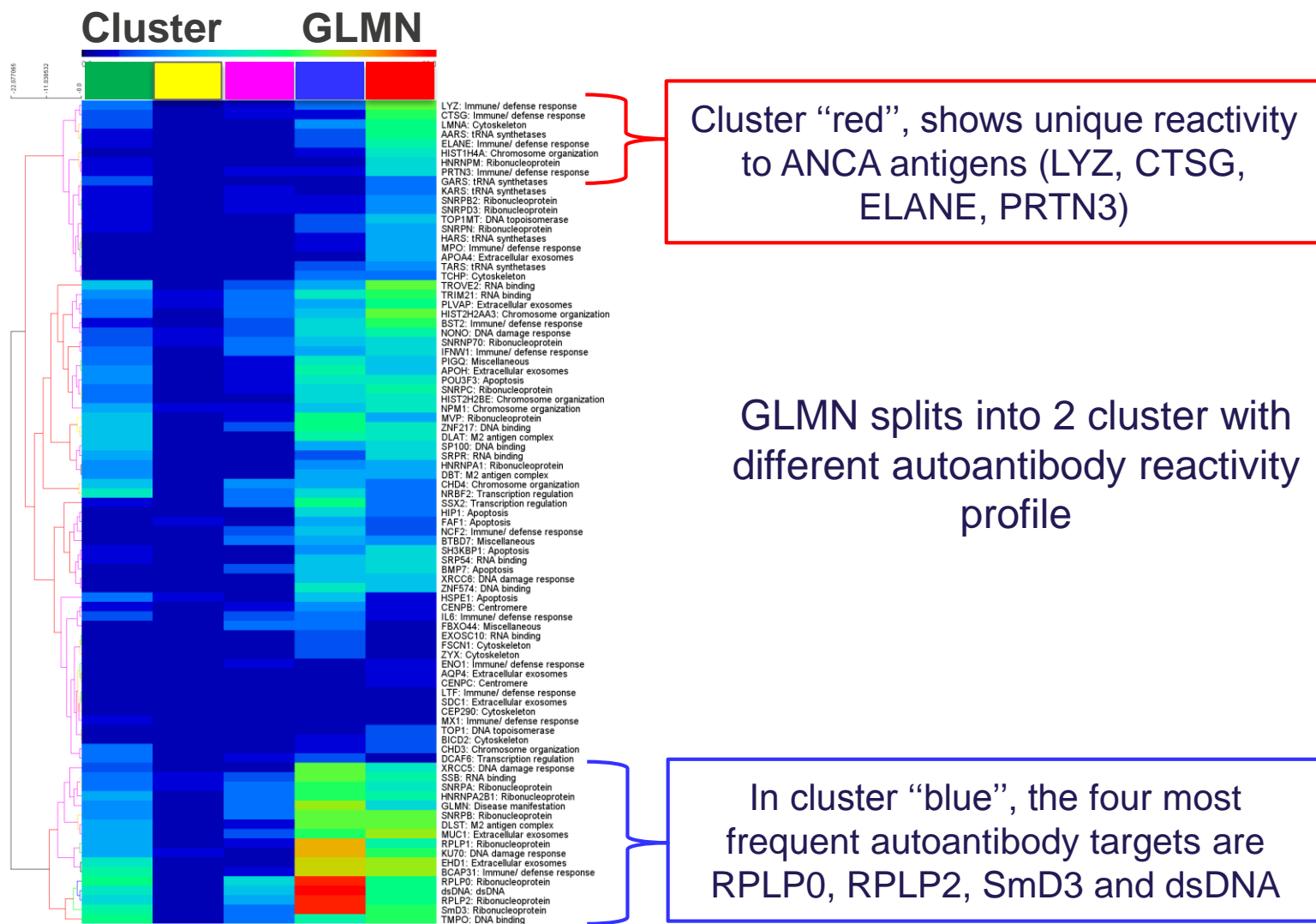
- Quantitative autoantibody information is converted into a binarized matrix (AAB yes/no)
- Number of autoantibodies per patient is calculated
- Patient clustering by similarities and differences in autoantibody reactivity

# Shared Autoantibody Reactivity in SLE

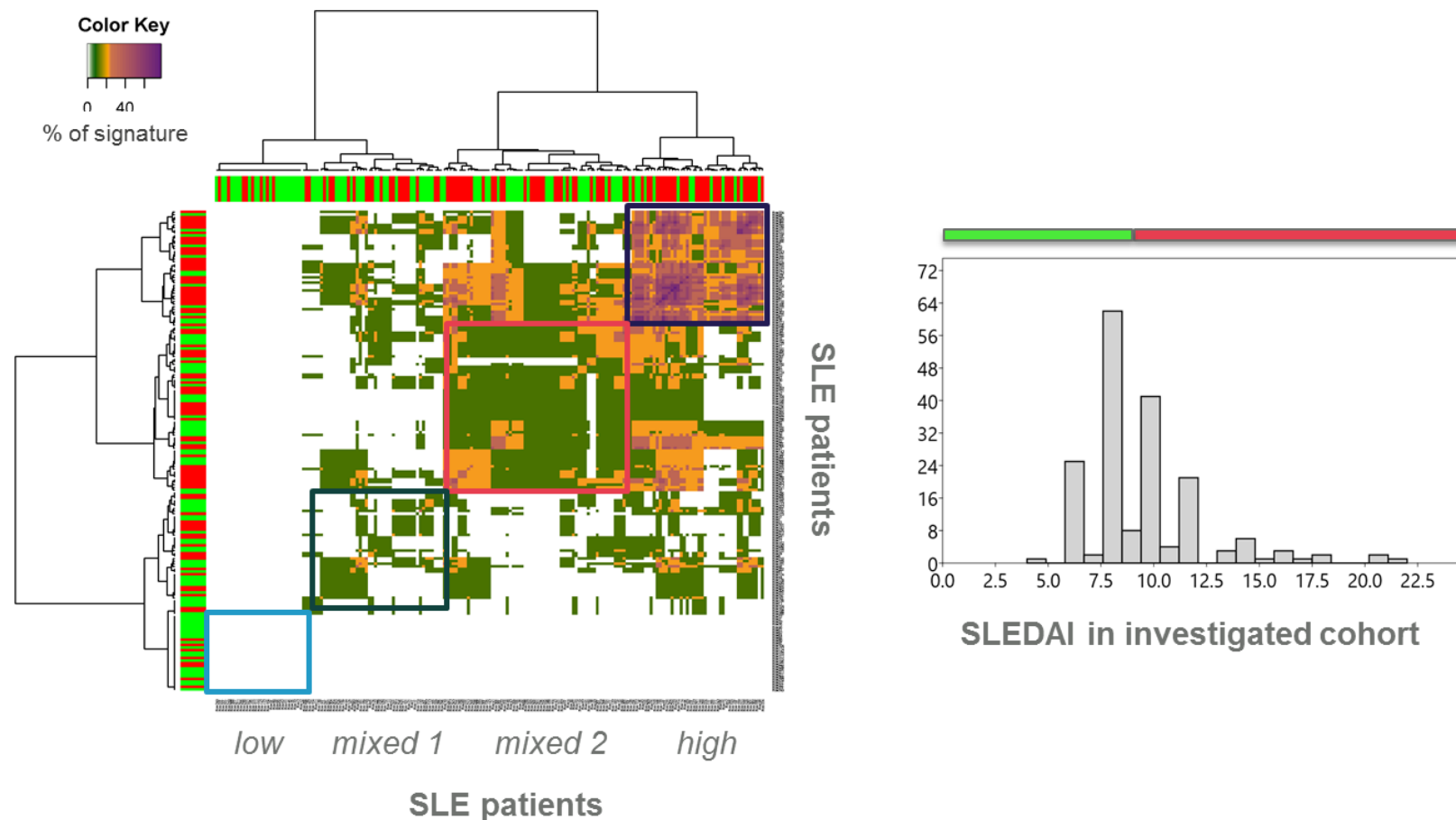


70% (n=31) of glomerulonephrits have an extended autoantibody portfolio

# Heatmap of Autoantibody Reactivity per Cluster



## IFN-Pathway Antigens associated with higher SLEDAI



**A subgroup of patients with high disease activity shows similar high AAB reactivity to 10 selected IFN pathway antigens**

# Summary

**High content autoantibody analysis in SLE leads to**

- **Improved differential diagnosis of disease**
- **Subgrouping of patients based on**
  - **Signature reactivity**
  - **Signature similarity**
  - **Association with organ damage**
  - **Association with IFN I biology**
  - **Disease activity**



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- CAPEA (M. Schneider, HHU, Düsseldorf, D)
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