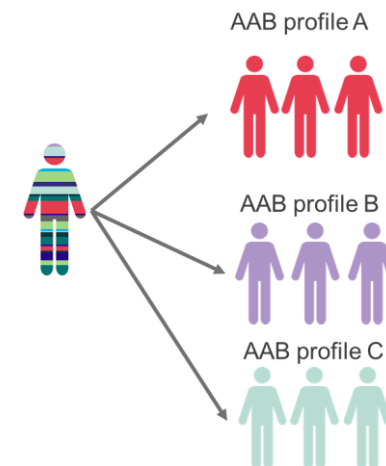
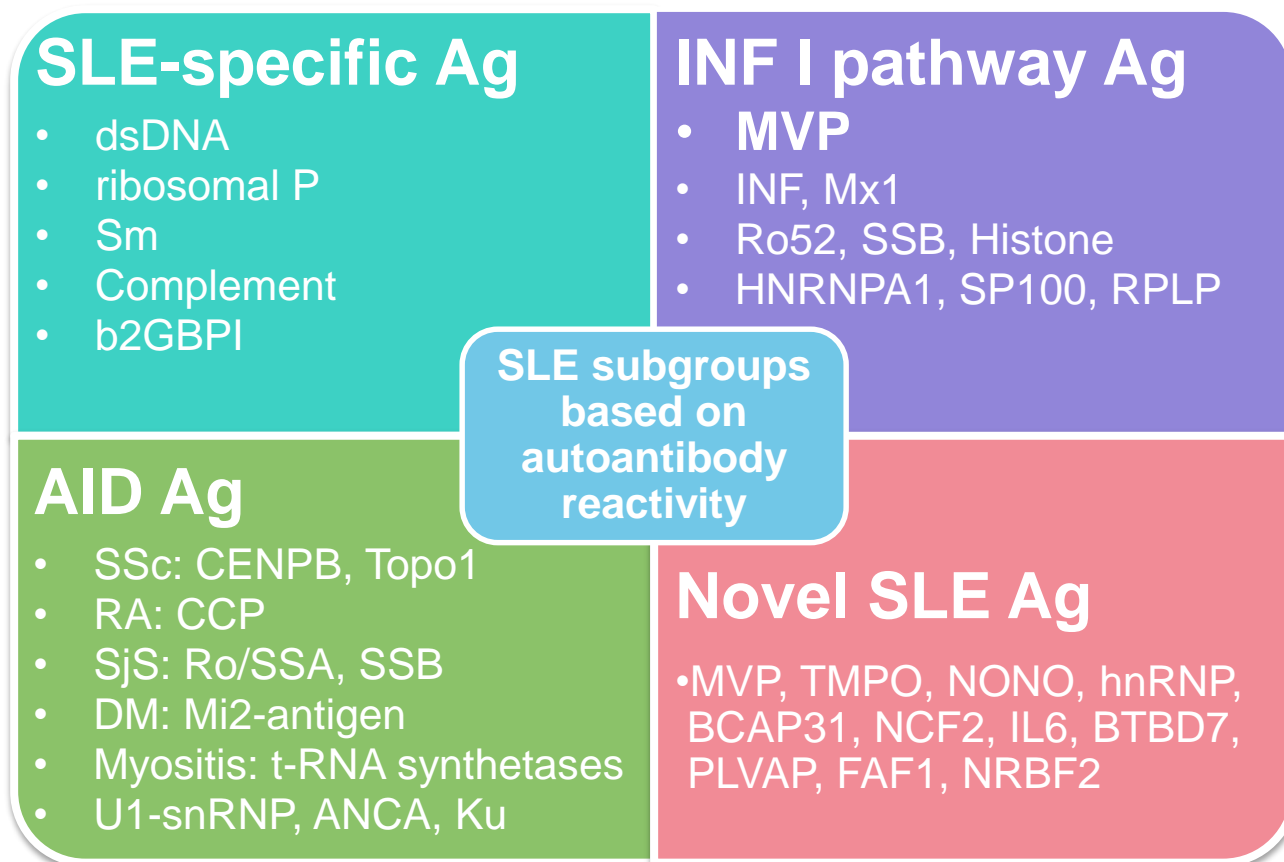




Discovery and initial validation of
autoantibodies against the major vault
protein (MVP) in systemic lupus
erythematosus

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

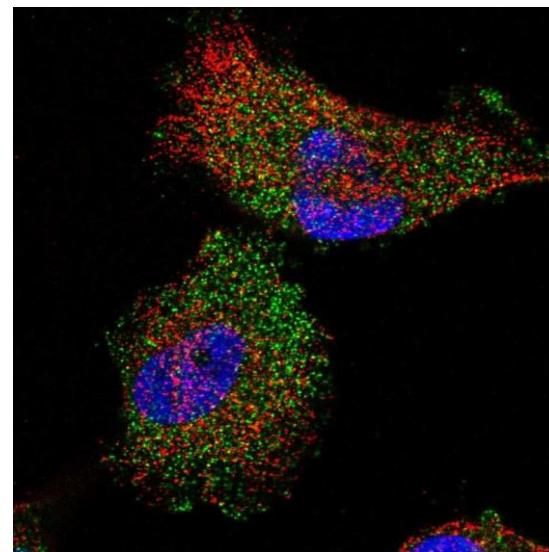
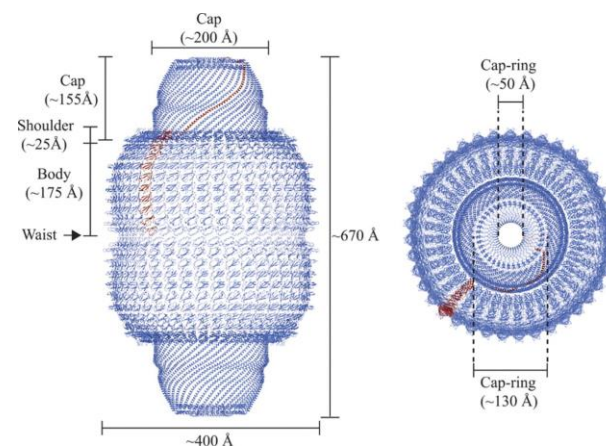
Multiplex NavigAID SLE 86 Antigen Array



- **Novel antigens associated with innate immune response pathways**
- **Antigens were discovered and validated in >700 SLE patients and used to develop an SLE stratification array**

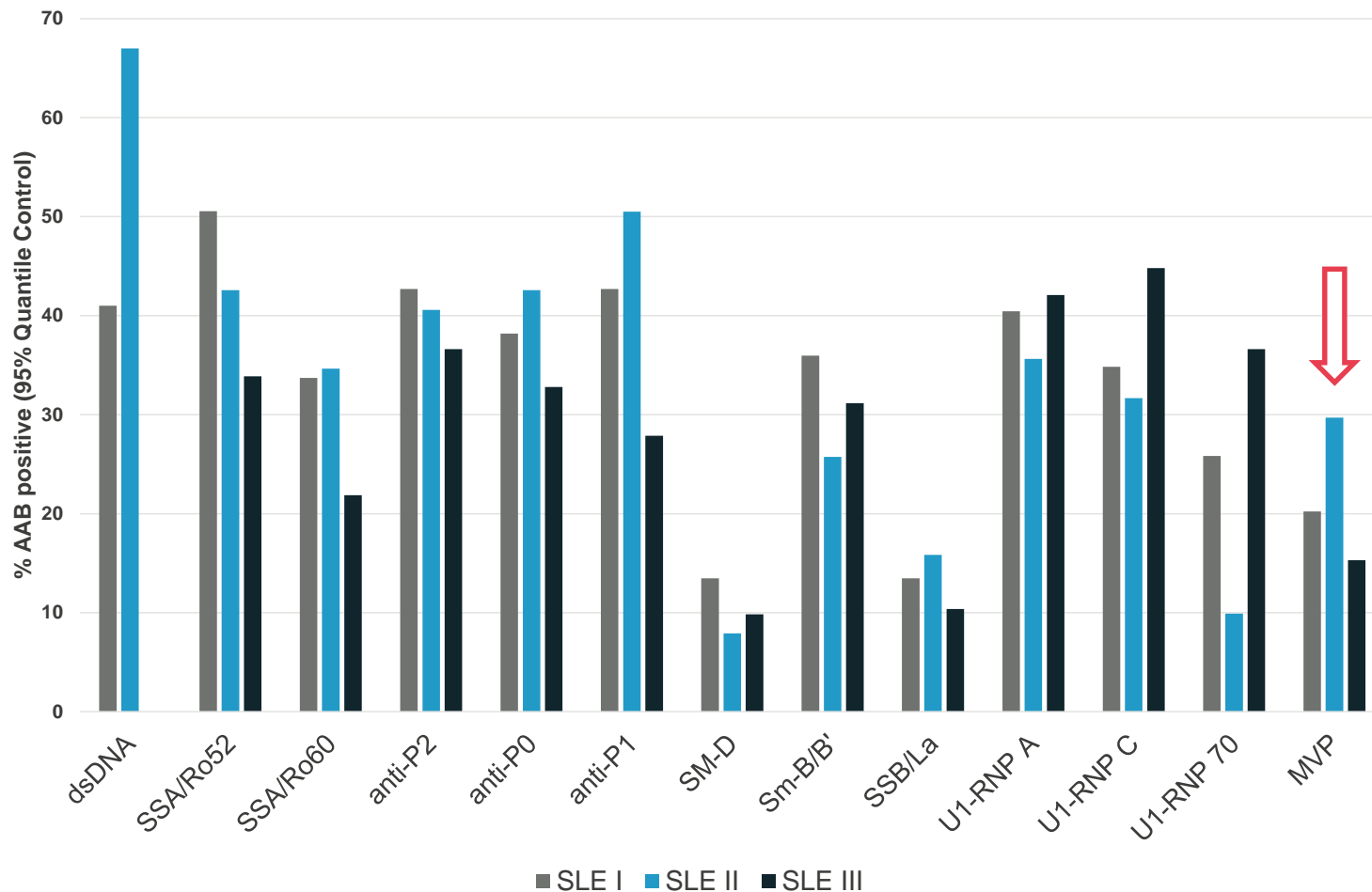
Major Vault Protein

- MVP is the major component of the 13 MDa vault complex, which are
- large cellular ribonucleoproteins
- Plays a role in host proinflammatory response
- Highly expressed in macrophages
- Induced by viral infections and dsRNA (DOI:10.4049/jimmunol.1501481)
- IFN-gamma-responsive gene (DOI:10.1242/jcs.02773)
- MVP expression up-regulates INF type I production, leading to cellular antiviral responses (DOI:10.1002/hep.25642)



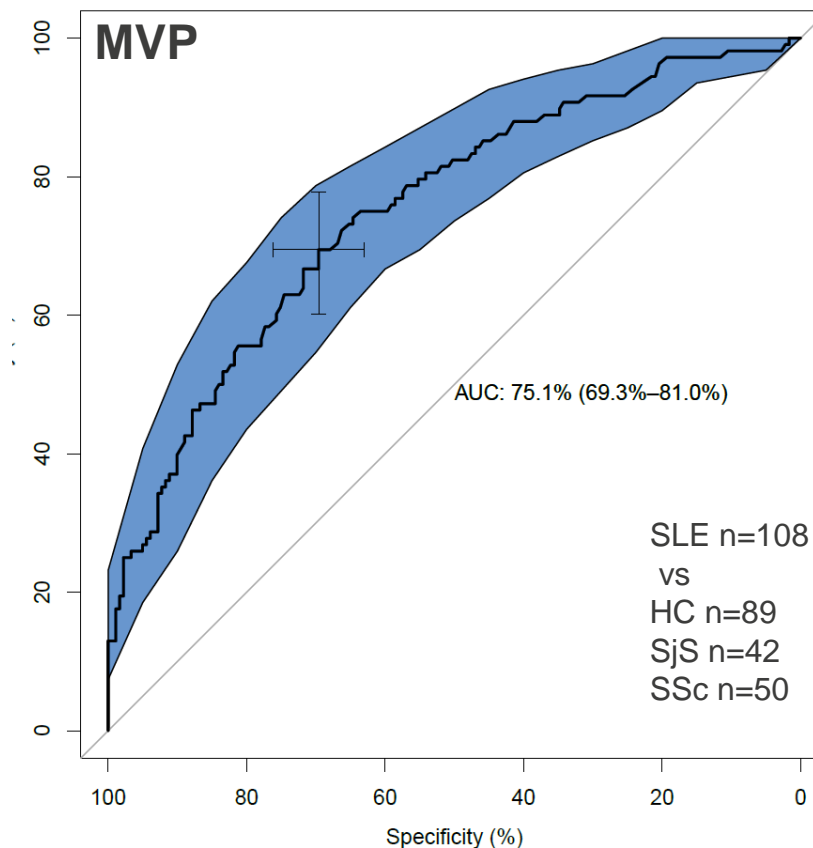
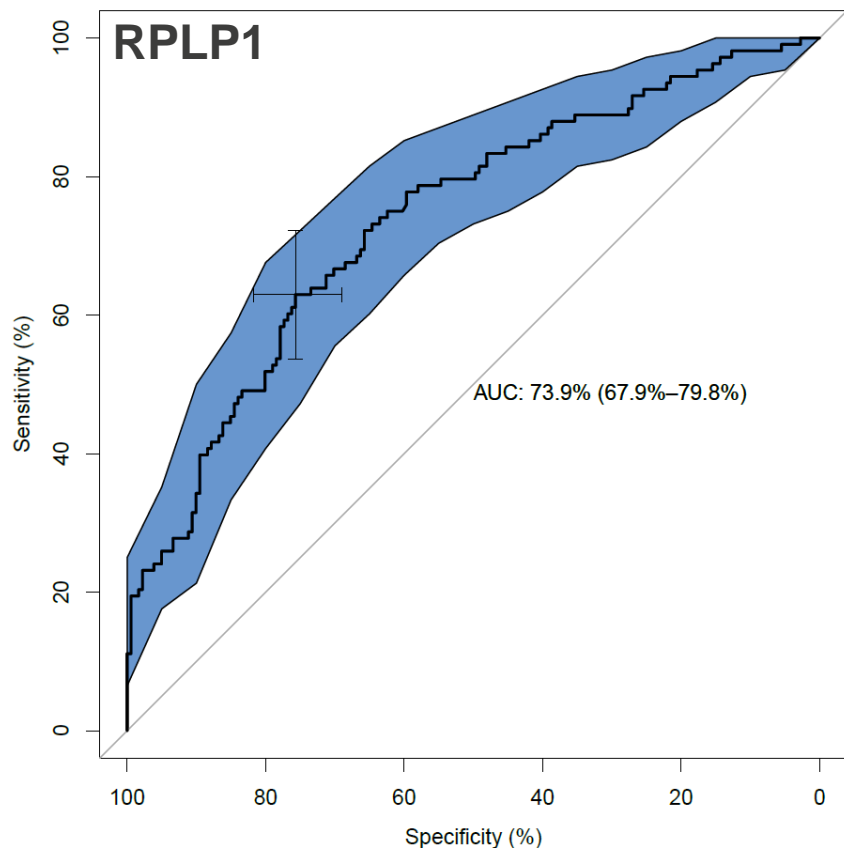
mouse mAb anti-MVP (green),
Source: Protein Atlas
www.proteinatlas.org

Anti-MVP Frequency in 3 SLE Studies



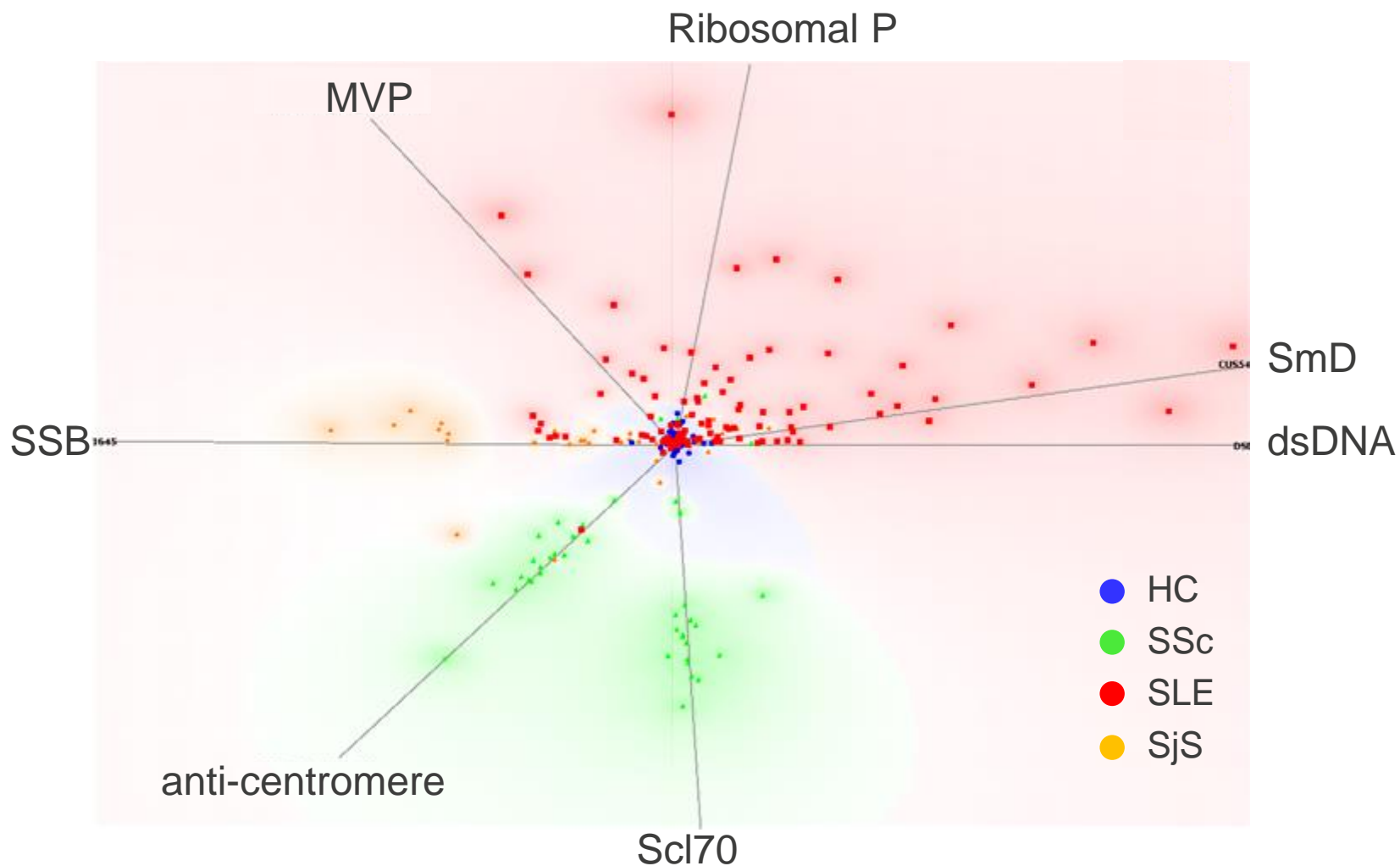
The frequency of anti-MVP antibodies among 3 SLE cohorts (400 samples) ranges from 15-30%

Anti-MVP has high Specificity for SLE



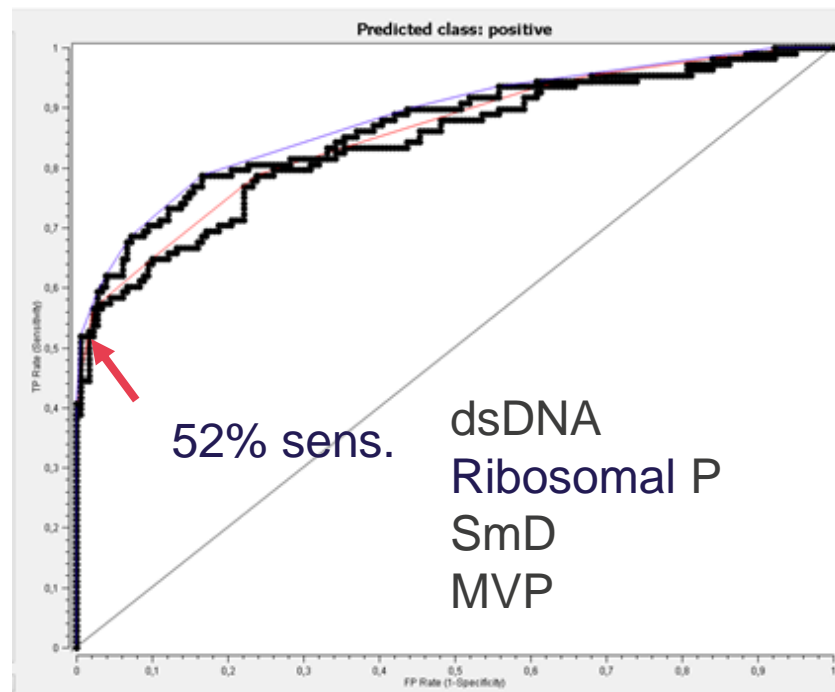
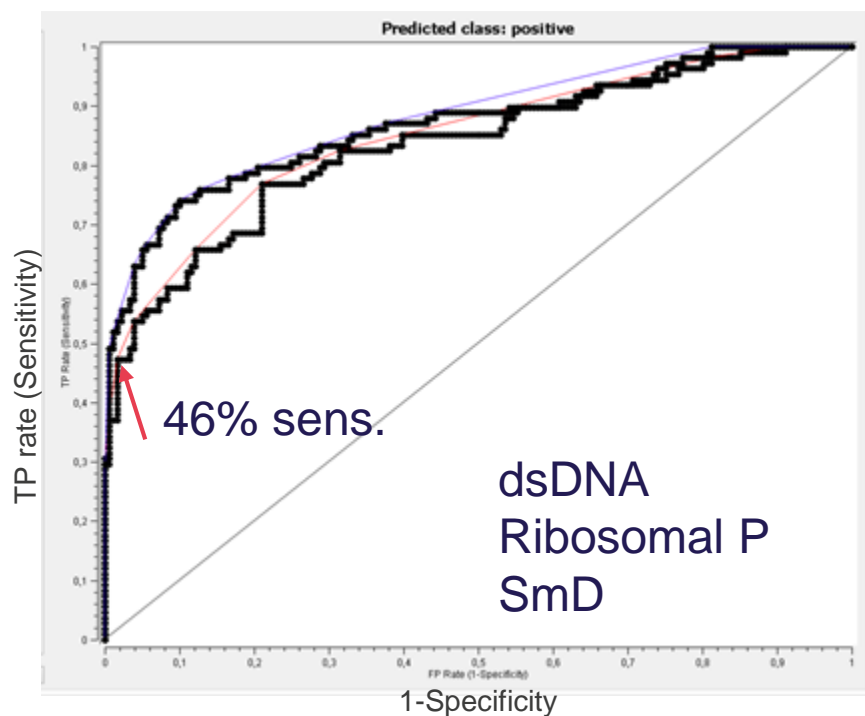
Anti-Rib P and anti-MVP have comparable sensitivity (23% vs 25%) and specificity (97%)

Anti-MVP defines a distinct SLE Subgroup



VisRank plot of antigens and samples

Anti-MVP improves Sensitivity and Specificity of Marker Panels



- Naive bayes
- Logistic regression

At 98% specificity 6% increase in sensitivity by adding MVP without loss of specificity

Summary

- **High content autoantibody screening reveals multiple novel antigens**
- **MVP is a specific SLE antigen with prevalences of 17-30%**
- **MVP biology links this novel autoantibody to IFN-I biology and viral infections**
- **Anti-MVP defines a subgroup of SLE Patients with little overlap to other specific SLE autoantibodies (dsDNA, anti-ribosomal P, SmD)**
- **More studies are underway to investigate the disease characteristics of this SLE subgroup**

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