# Immuno Delivery I

## Presenter: Rianne Maas

## Promoting organ transplant survival with trained immunity-inhibiting nanobiologics

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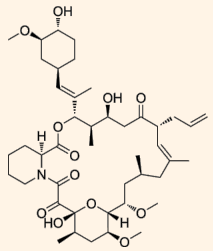
# Organ transplant rejection: adaptive to innate

## Current anti-rejection therapeutics

Target adaptive immunity

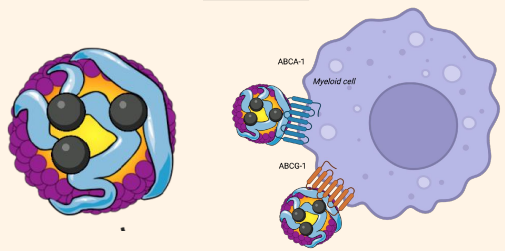


**Tacrolimus**

- Suboptimal survival rates
- Daily use
- Impaired host defense & adverse events
- Toxicity

## Our nanotherapeutic approach

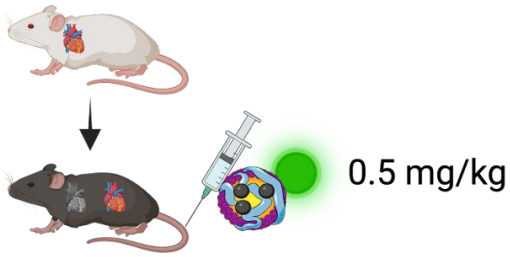
Target innate immunity



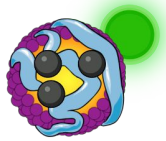

**Tacrolimus-loaded apolipoprotein A1 nanobiologics**

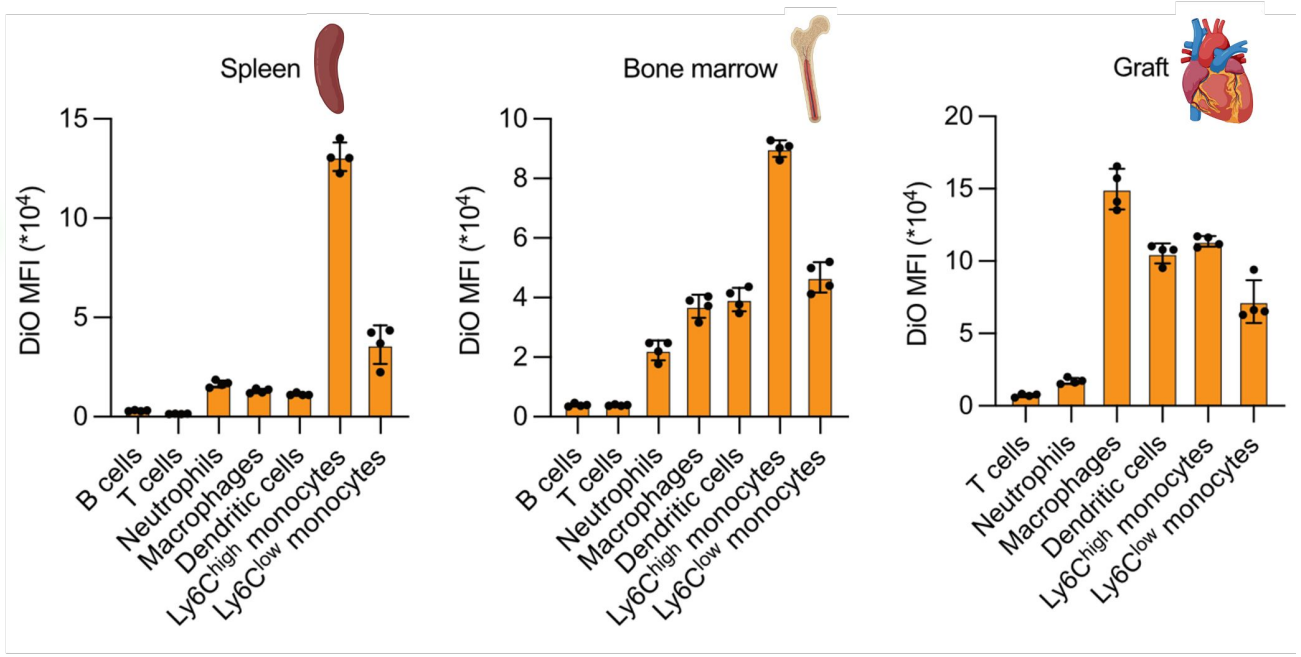
# Results

*In vivo* cellular uptake of tacrolimus-nanobiologics



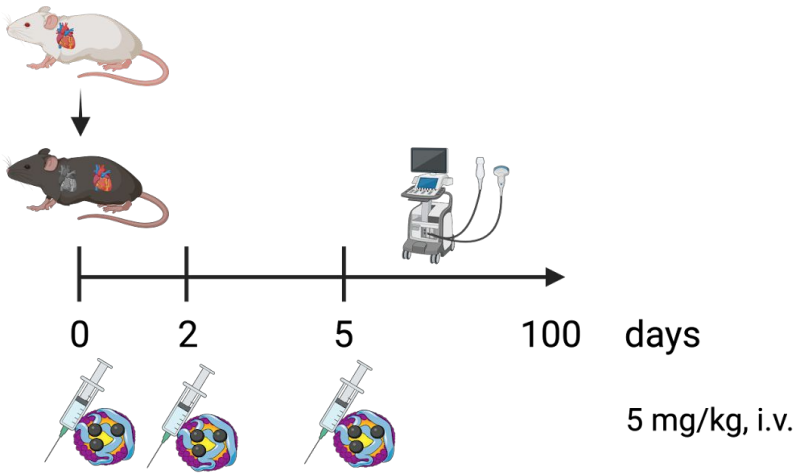
0.5 mg/kg

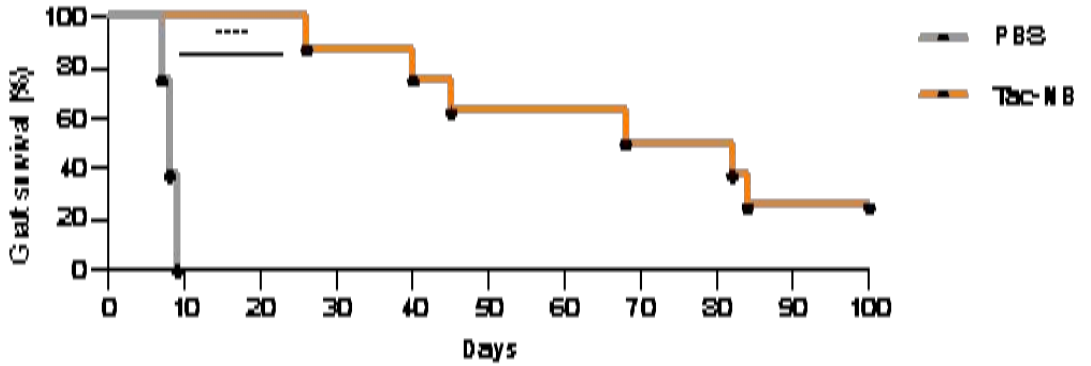


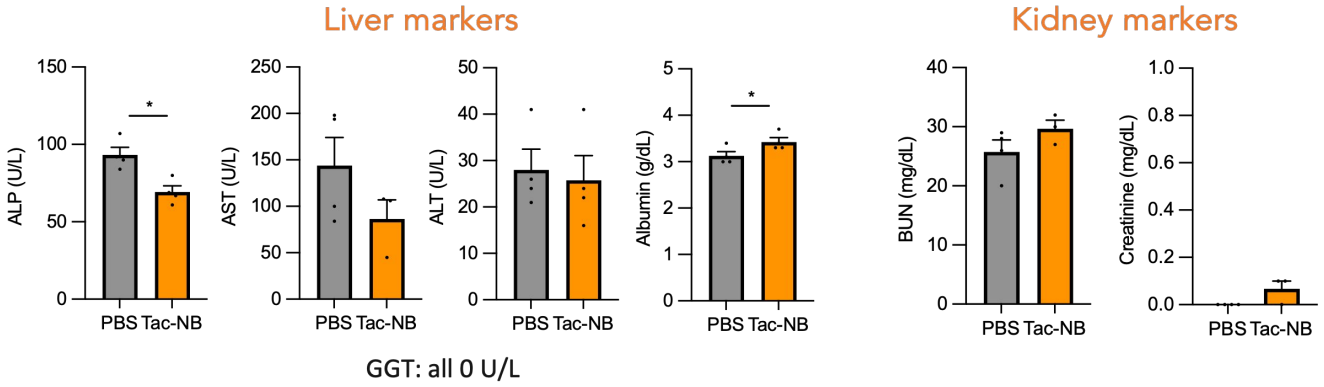


# Results

## Therapeutic effect on allograft survival and toxicity



# Conclusions & Outlook

- ✔ Tacrolimus-nanobiologics are specifically taken up by innate immune cells
- ✔ Delivering tacrolimus to innate immune cells promotes organ transplant survival
- ✔ *In vitro* mechanistic data: innate immune memory

- ○ Investigate the drug release and NB behavior
- ○ *In vivo* mechanistic data
- ○ Comparison with bare tacrolimus

Promoting organ transplant survival by targeting the innate immune system by apolipoprotein A1 nanotherapeutics is a promising avenue

# Thank you

Poster number: 371