

# TRAP-cage - a novel synthetic vaccination platform

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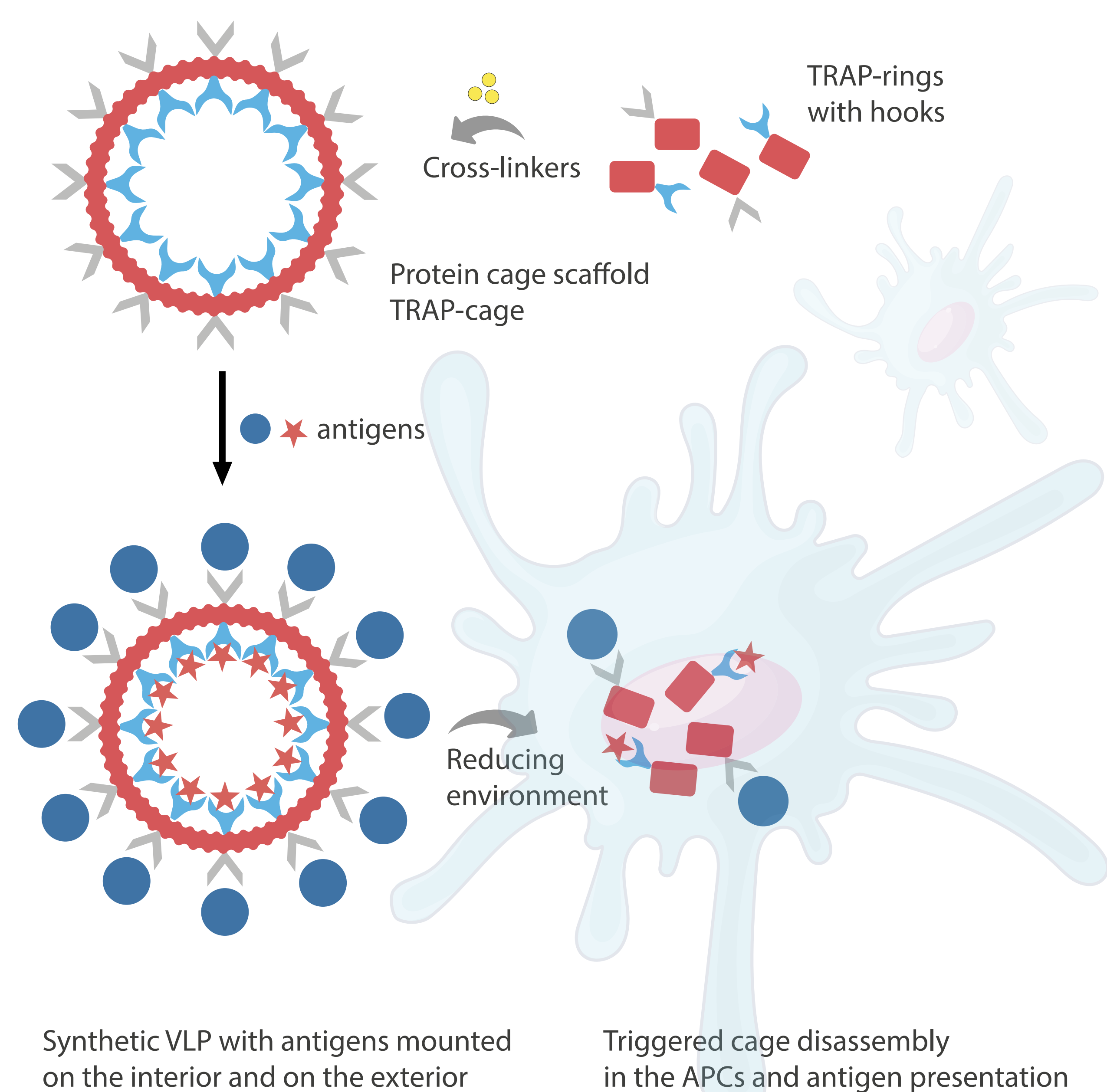
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Protein cages are biological nano-assemblies which can act as nanocompartments and play vital roles in living systems. Taking inspiration from nature, non-infectious virus-like particles have been engineered and proven useful for various applications in biotechnology including as vaccines.

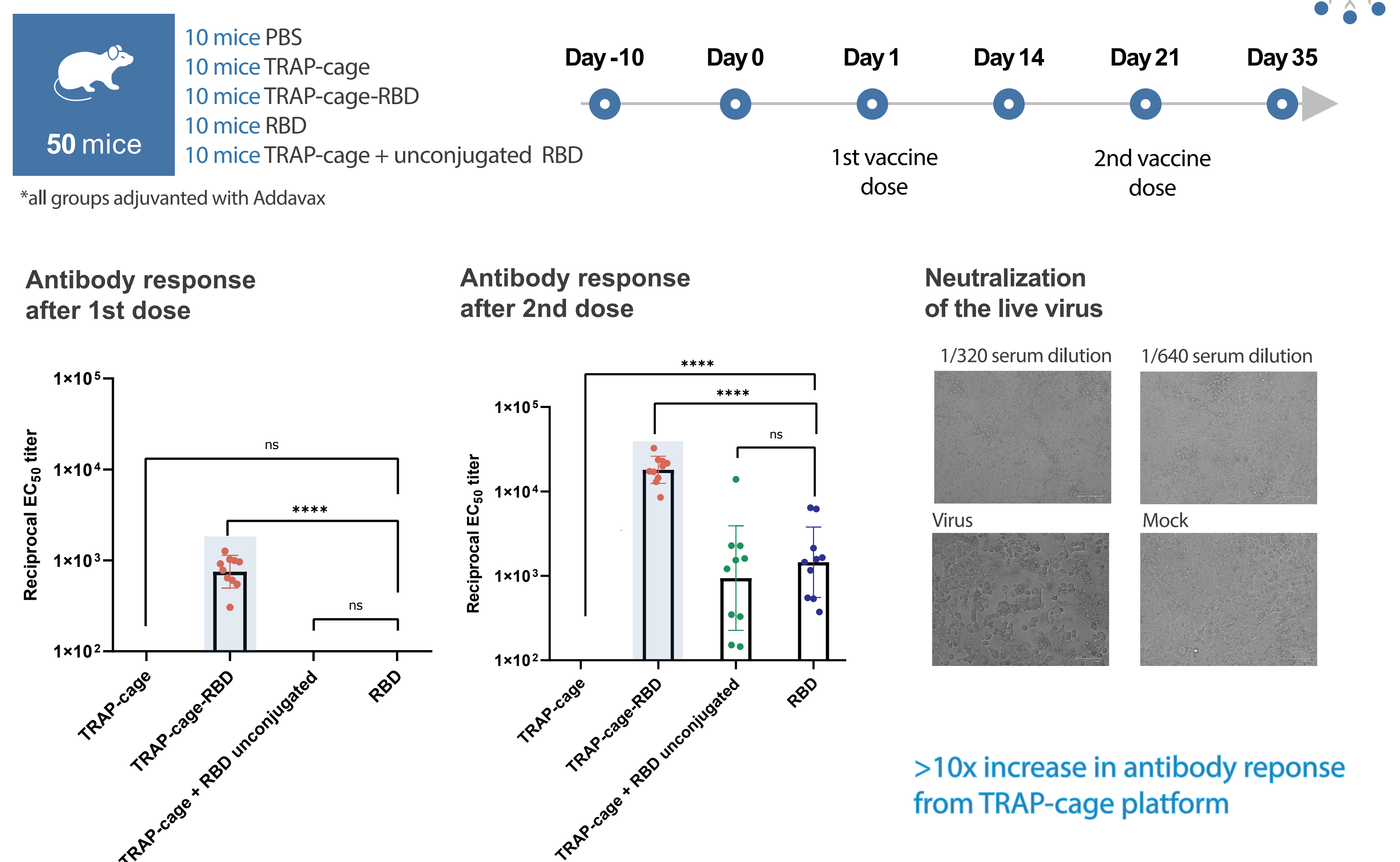
nCage Therapeutics have developed a non-viral, novel synthetic VLP constructed from a ring-shaped protein – trp-RNA binding attenuation protein (TRAP)<sup>1</sup>. Among many potential applications, we are exploring TRAP-cage as a vaccine platform.

Our development strategy aims to test different viral antigens in combinations including influenza hemagglutinin (HA). We are currently designing an HA-based antigen tailored to our platform in terms of attachment and spacing so that we can achieve strong and durable immune response. Viral peptides delivery could help to obtain balanced T and B cell response.

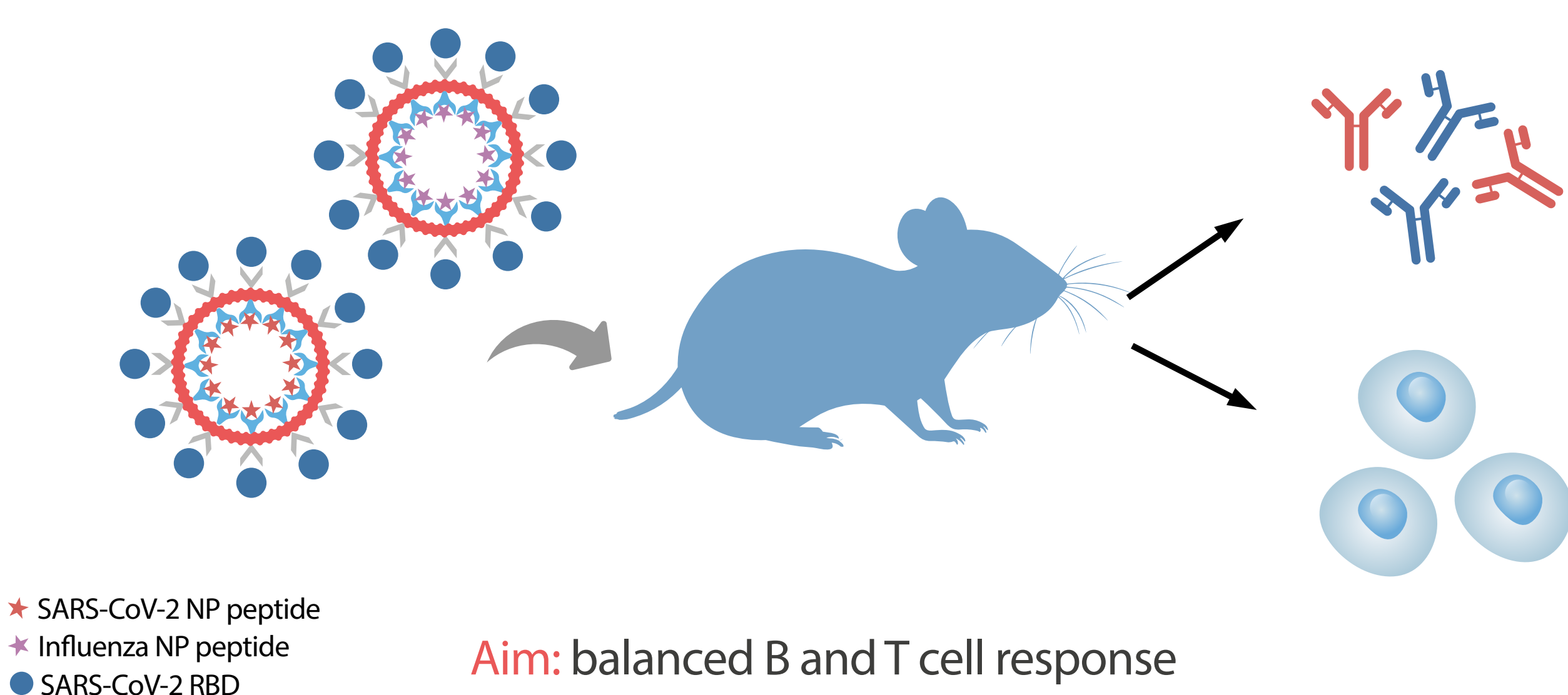
## TRAP-cage assembly and antigen presentation



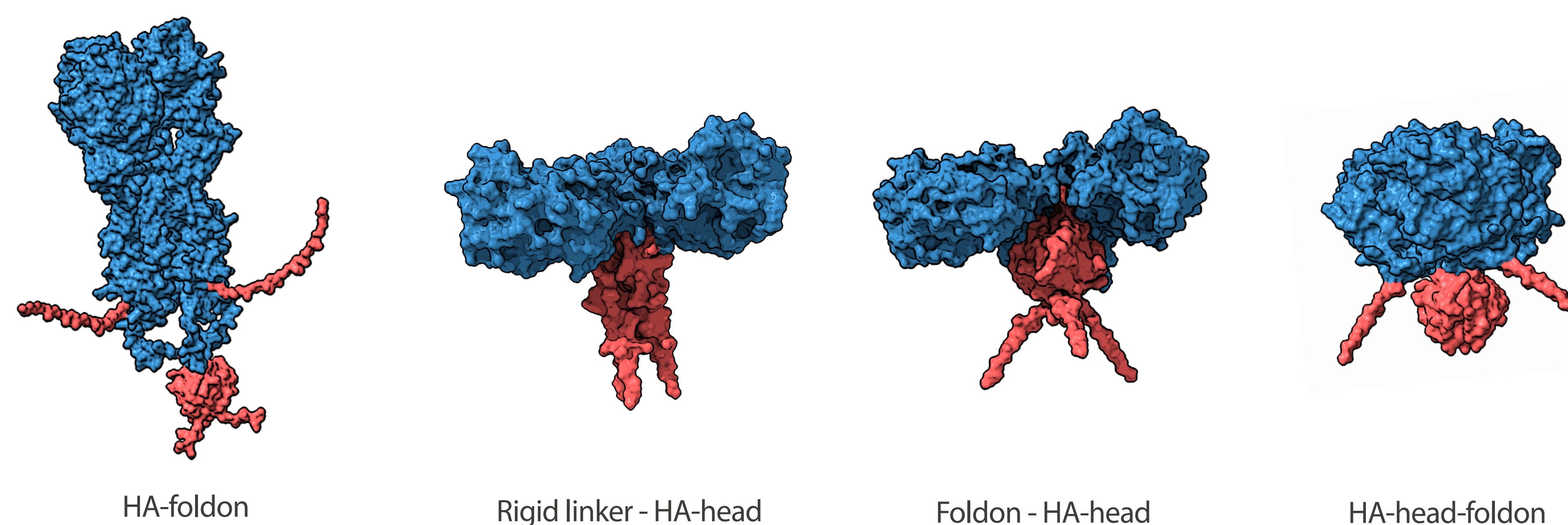
## Vaccination with TRAP-cage decorated with SARS-CoV-2-RBD



## Study design: TRAP-cage-SARS-CoV-2-RBD loaded with viral peptides from SARS-CoV-2 and influenza



## Design of HA influenza antigens for TRAP-cage decoration



<sup>1</sup> Malay A., et al. Nature, 2019

## Conclusion

- VLPs produce best in class vaccines with a strong and durable immune response
- TRAP-cage can be used as a synthetic viral like particle (VLPs) mimicking the shape and structure of a virus
- nCage has demonstrated the potential of their vaccine platform in animal models showing a ten fold increase in efficacy versus soluble antigen