

# De novo peptide-based virus-like particles as biological standards

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## Introduction

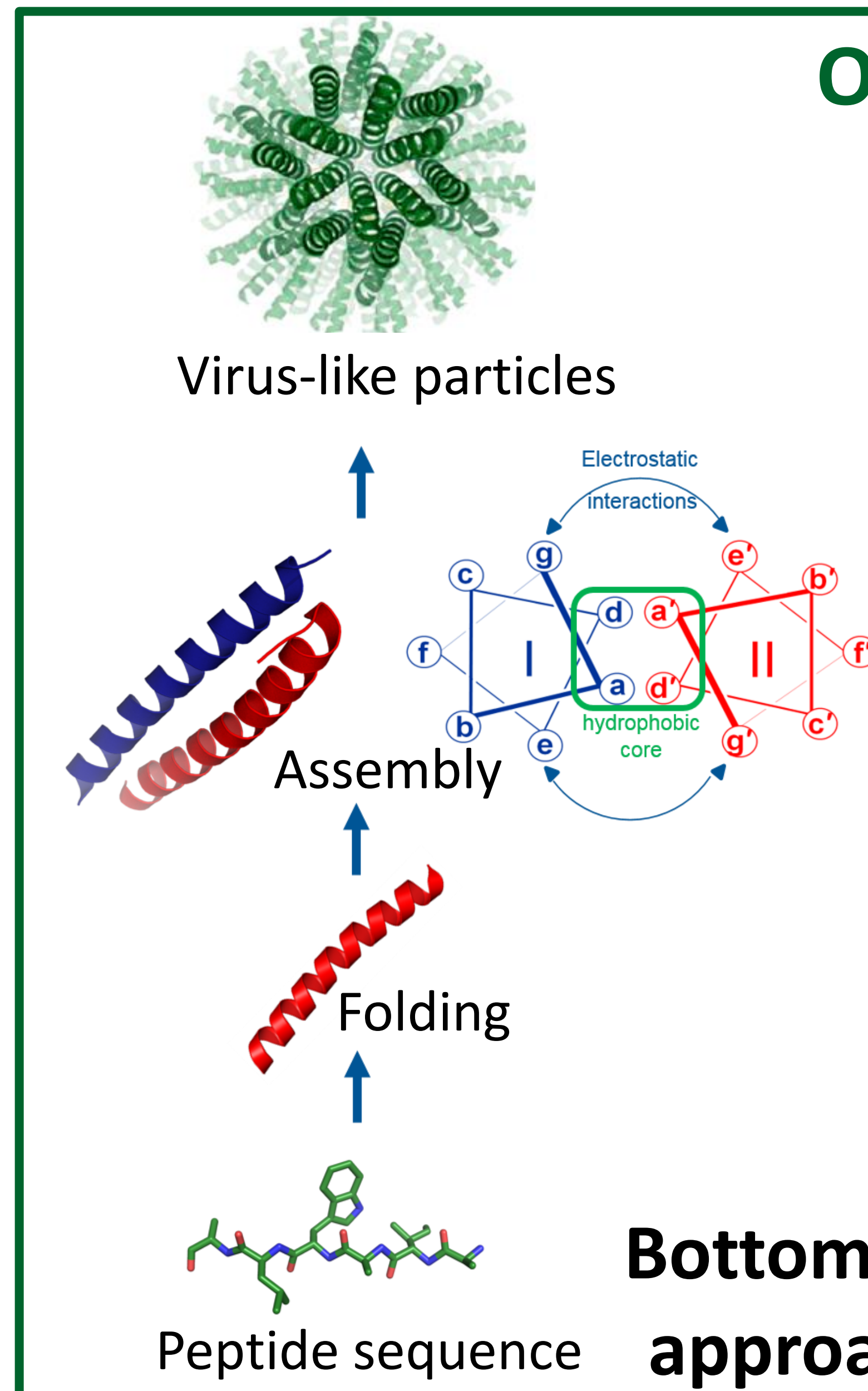
Gene delivery depends on adaptable nanoscale vehicles to safely handle and deliver therapeutic nucleic acids into human cells.

Viruses are the most efficient gene-transfecting agents in nature and have been an inspiration for the development of novel gene delivery vehicles.

## Metrology need

Need for intracellular reference materials and protocols to improve quantification and reproducibility of transfection efficiency, cell viability and activity.

## Our approach



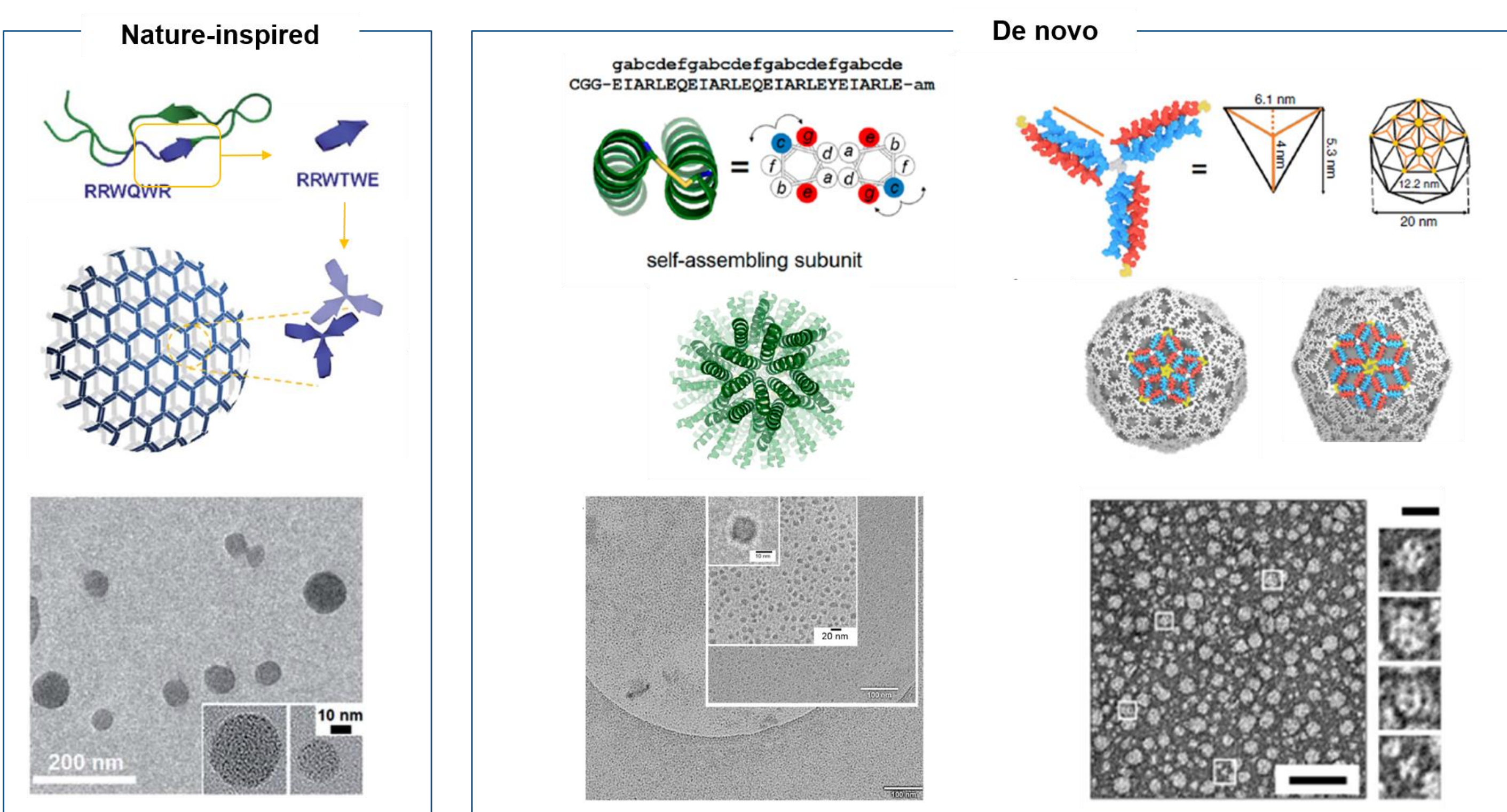
The modularity in peptide design allows for a controlled and predictable assembly which, makes peptide-based virus-like particles ideal candidates as intracellular standards.

Their development as standards is currently being validated by an intercomparison study under VAMAS.



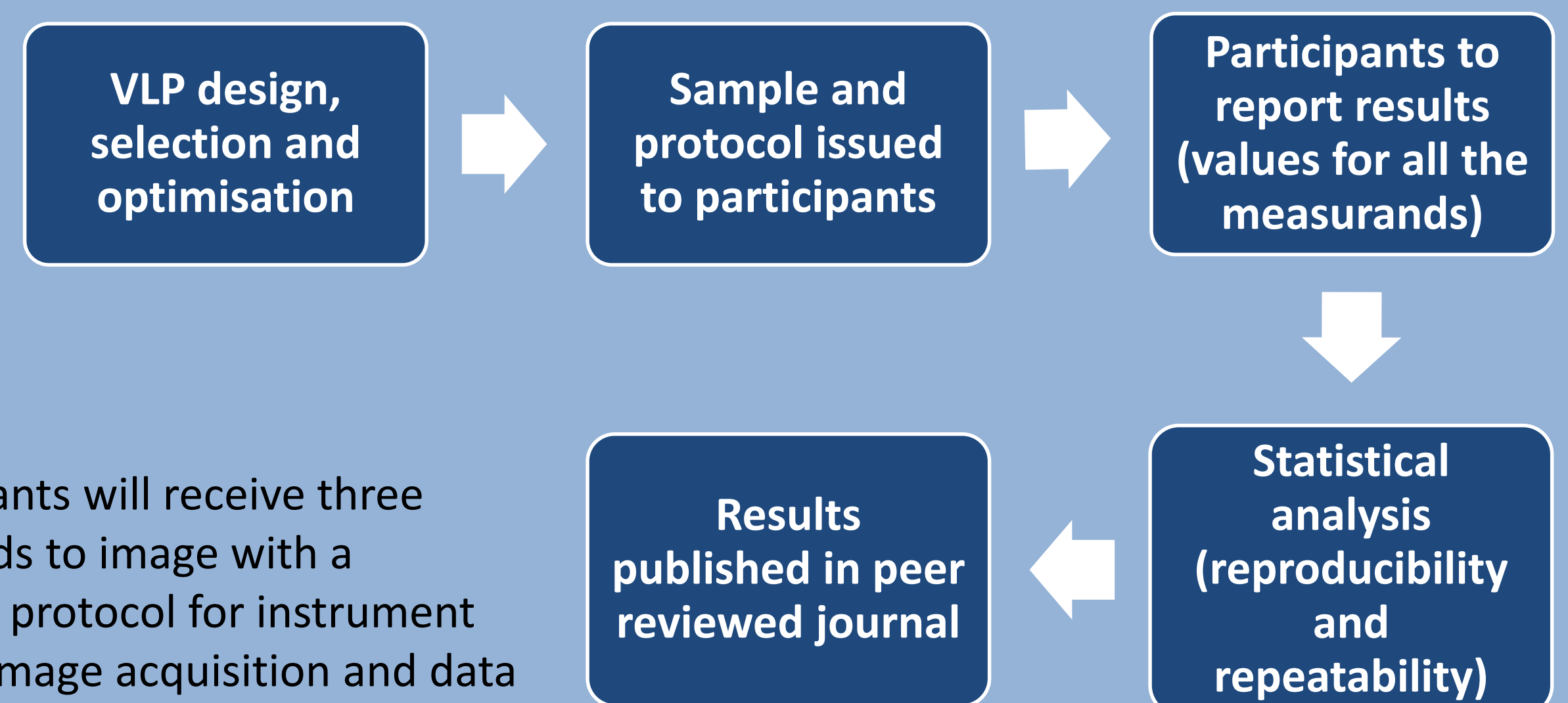
# Towards de novo virus-like particles as biological standards

## Design rationale and characterisation



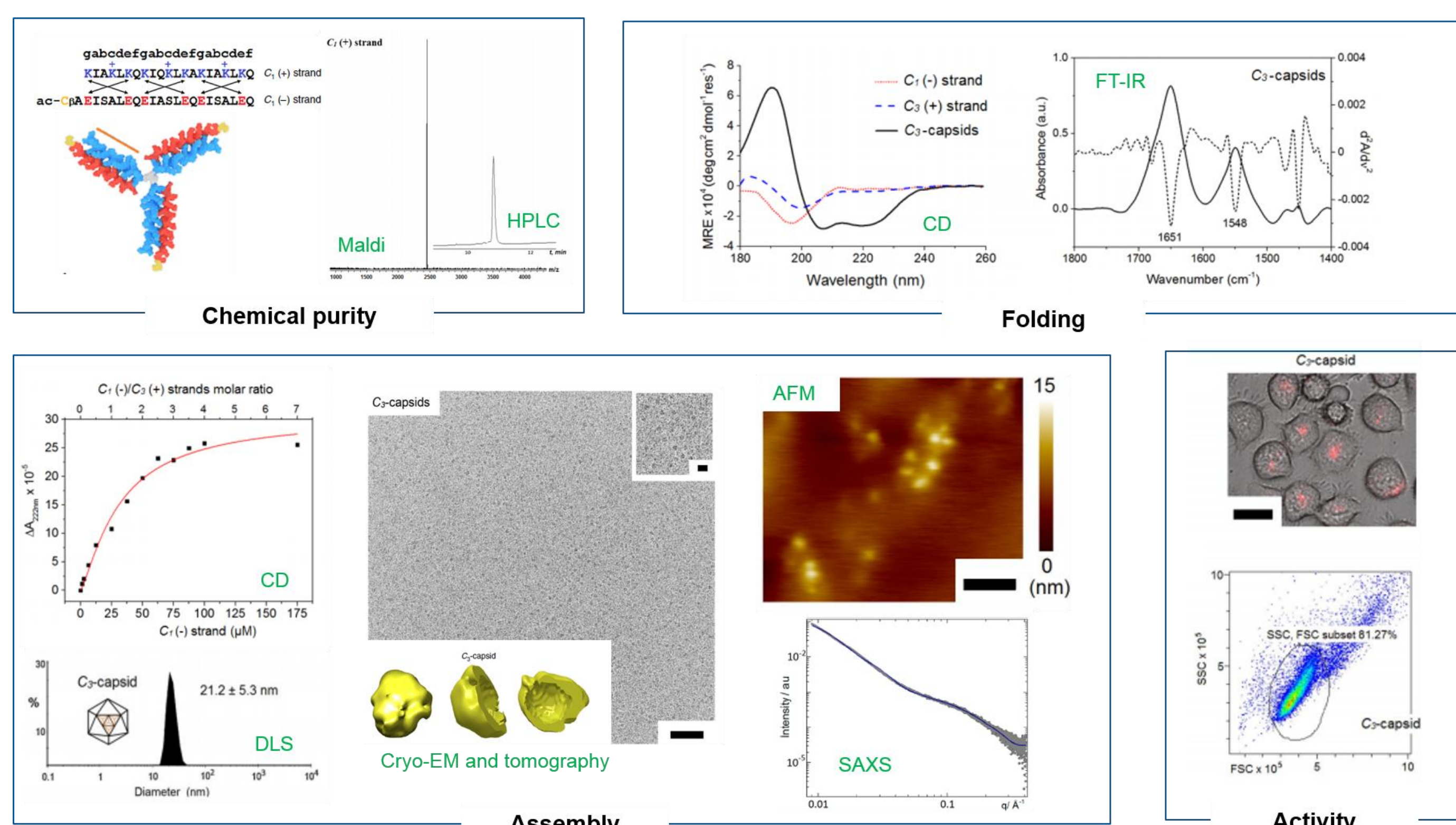
## Validation via intercomparison study

VAMAS supports world trade in products dependent on advanced materials technologies, through International collaborative projects aimed at providing the technical basis for harmonized measurements, testing, specifications, and standards.



We are accepting participants

## Measurement continuum



## Sample and protocol optimisation

**Measurands:**  
N: particles/ $\mu\text{m}^2$   
D: Feret's diameter  
PDI: Polydispersity  
R: Roundness

Good agreement between particle size by TEM and AFM in liquid.

