

# Using Nanobodies as an Intracellular Biological to Block Production of HIV-1 Through Innate Antiviral Mechanisms

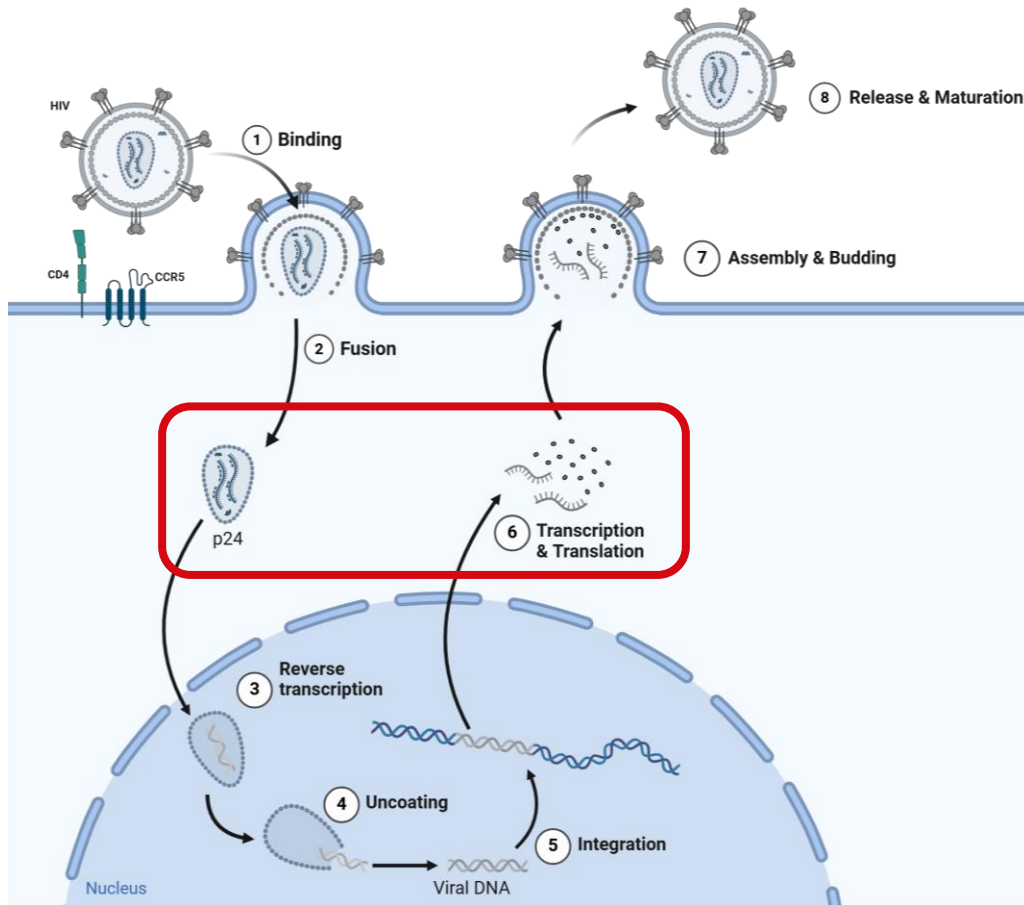
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NCHIV  
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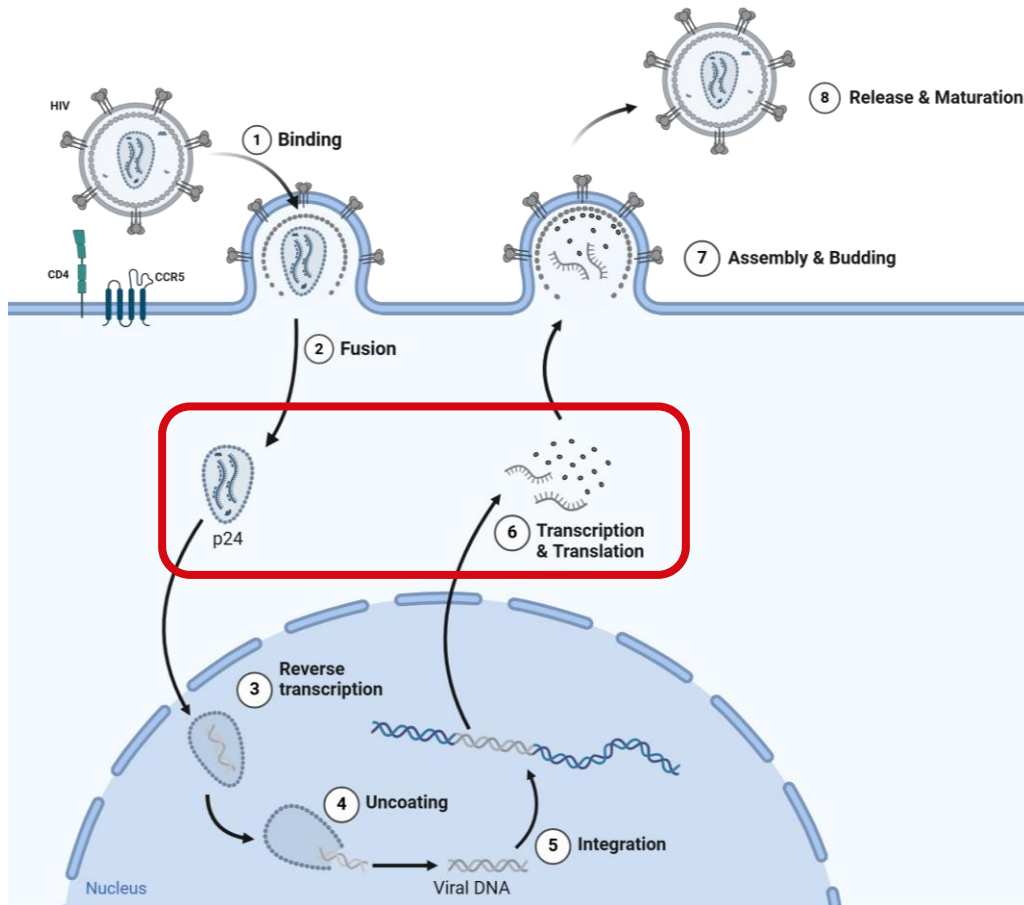


# HIV-1 replication cycle: targets for inhibition

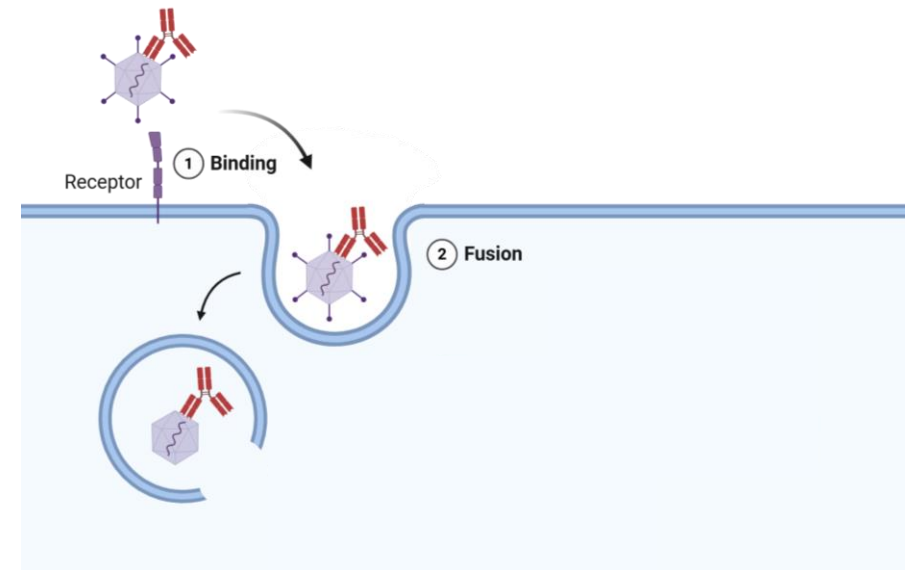




# HIV-1 replication cycle: targets for inhibition



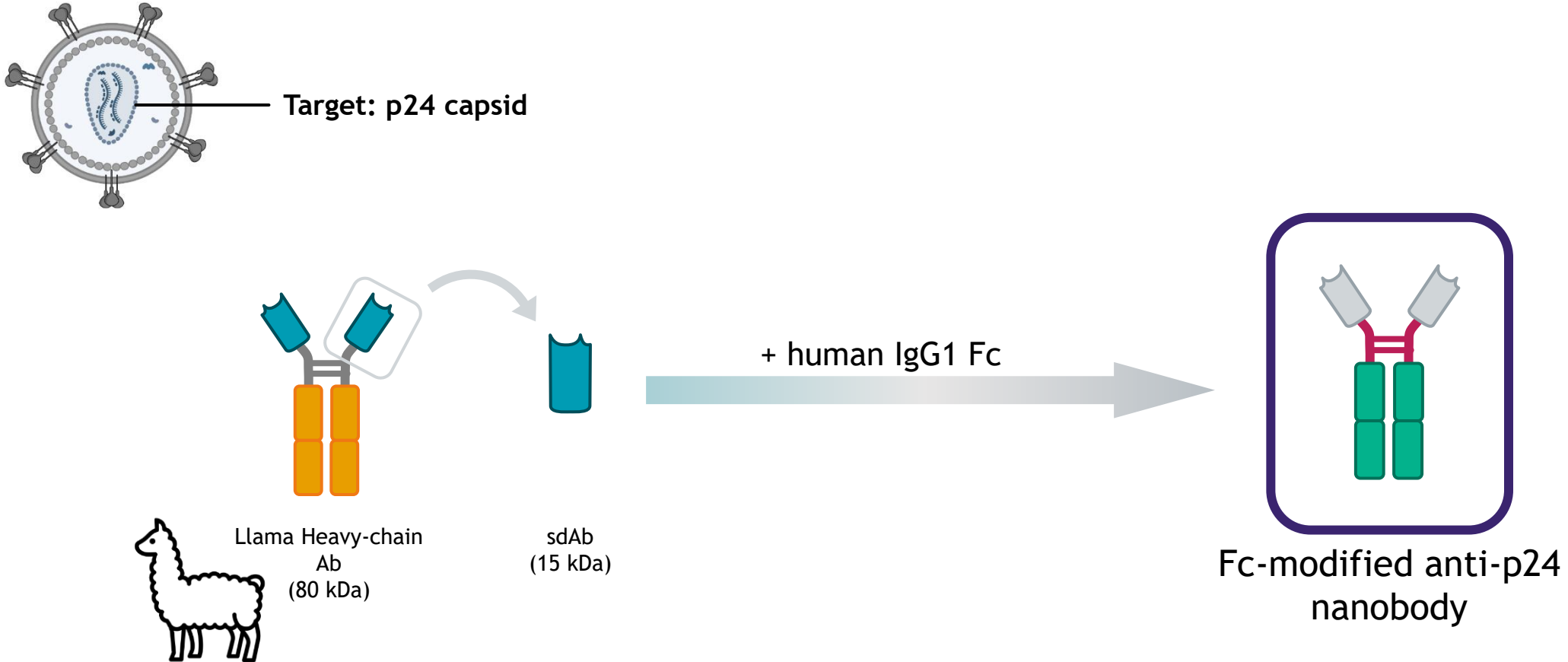
TRIM21 protein: high affinity cytosolic antibody (Fc) receptor



Can we use this pathway for targeted intracellular protein degradation?

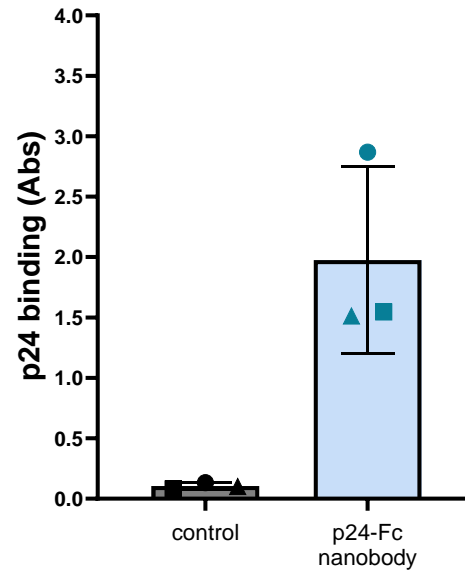
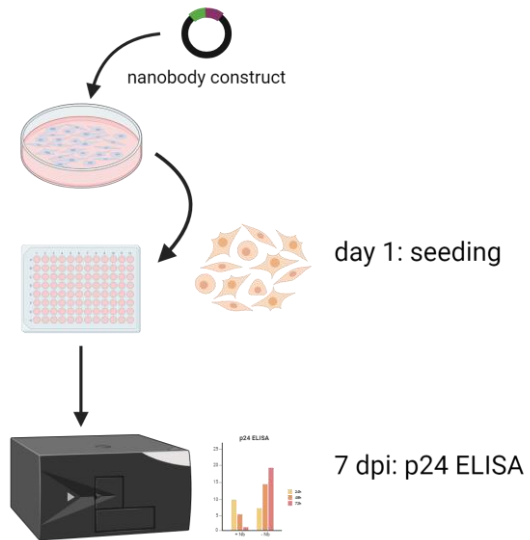


# Creating a biological for direct protein targeting





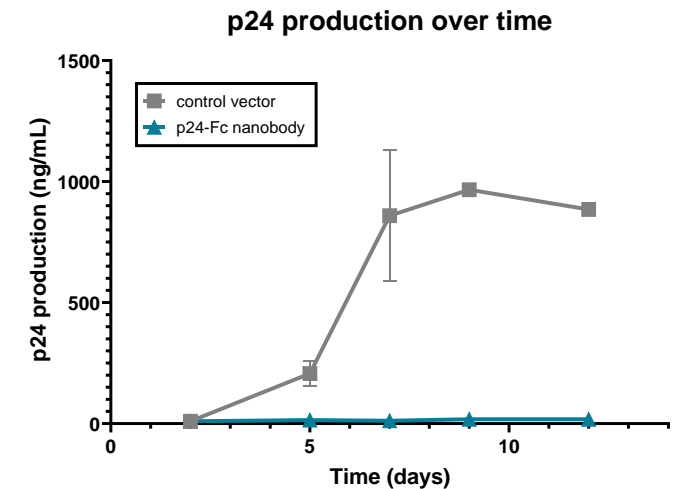
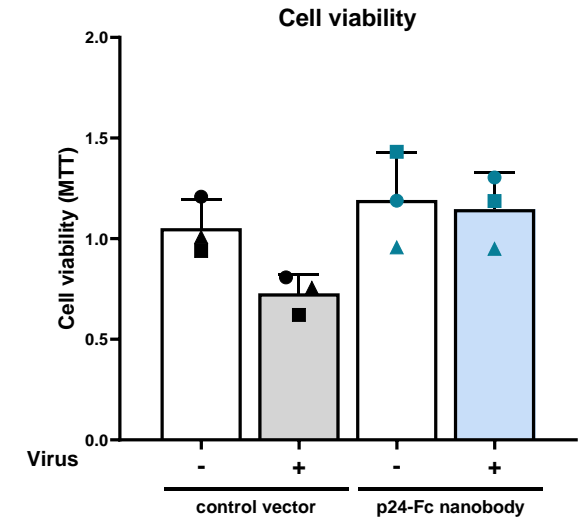
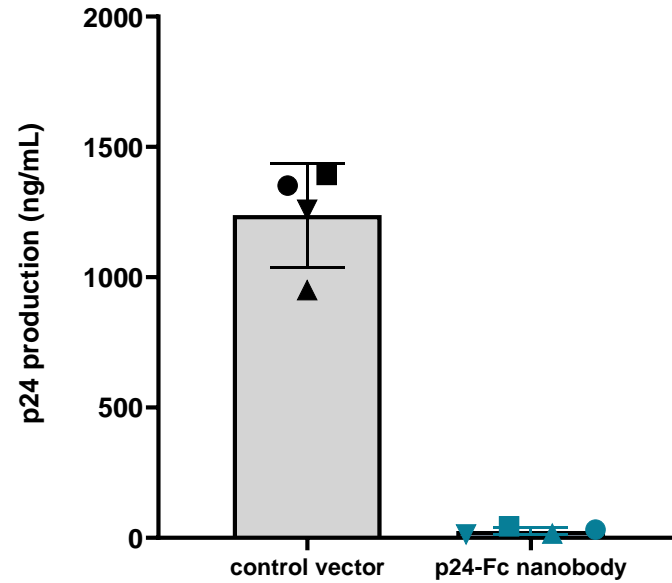
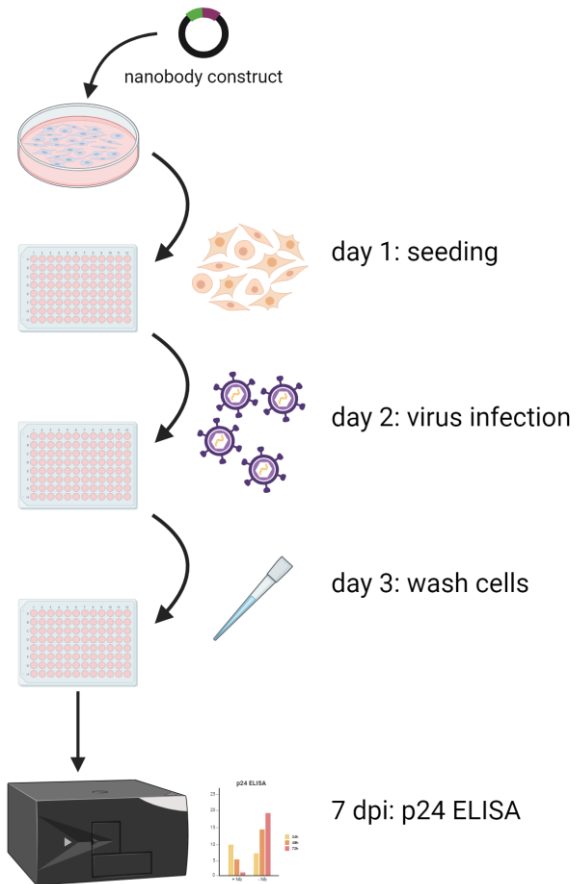
# Anti-p24 nanobodies bind p24 capsid



Binding of p24 standard (intact 3D capsid) by cells containing Fc-modified nanobodies

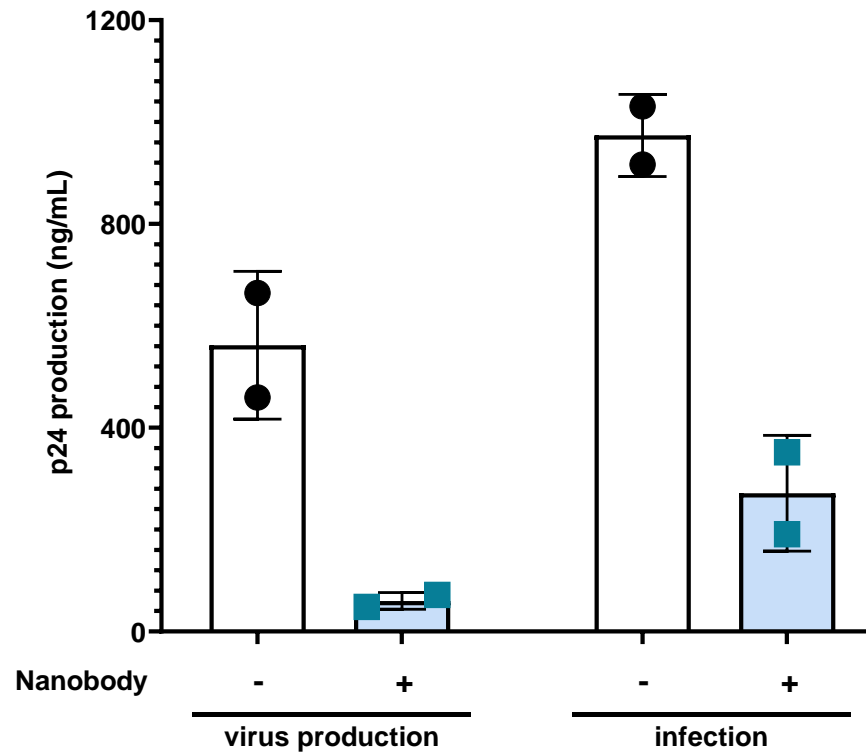
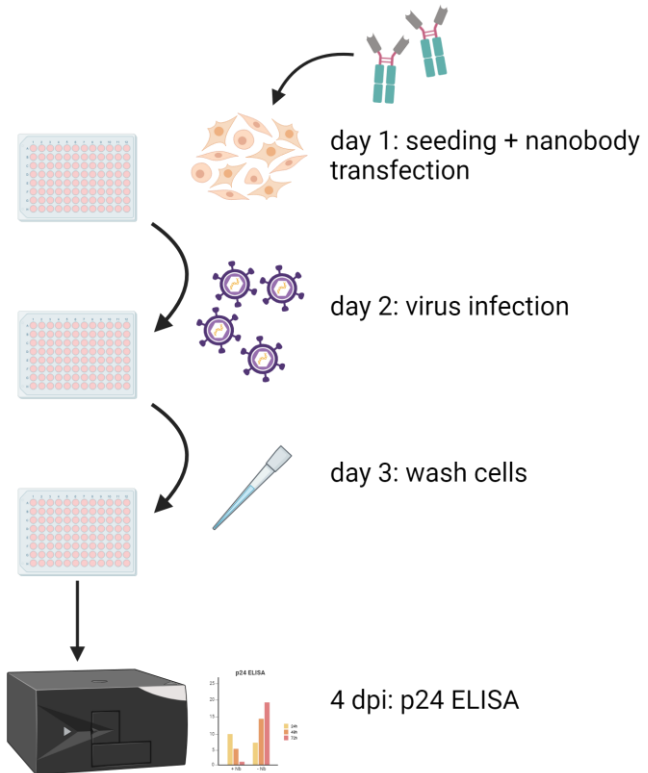


# HIV-1 infection is blocked and p24 degraded in nanobody-producing cells





# Turning the modified nanobodies into a functional biological

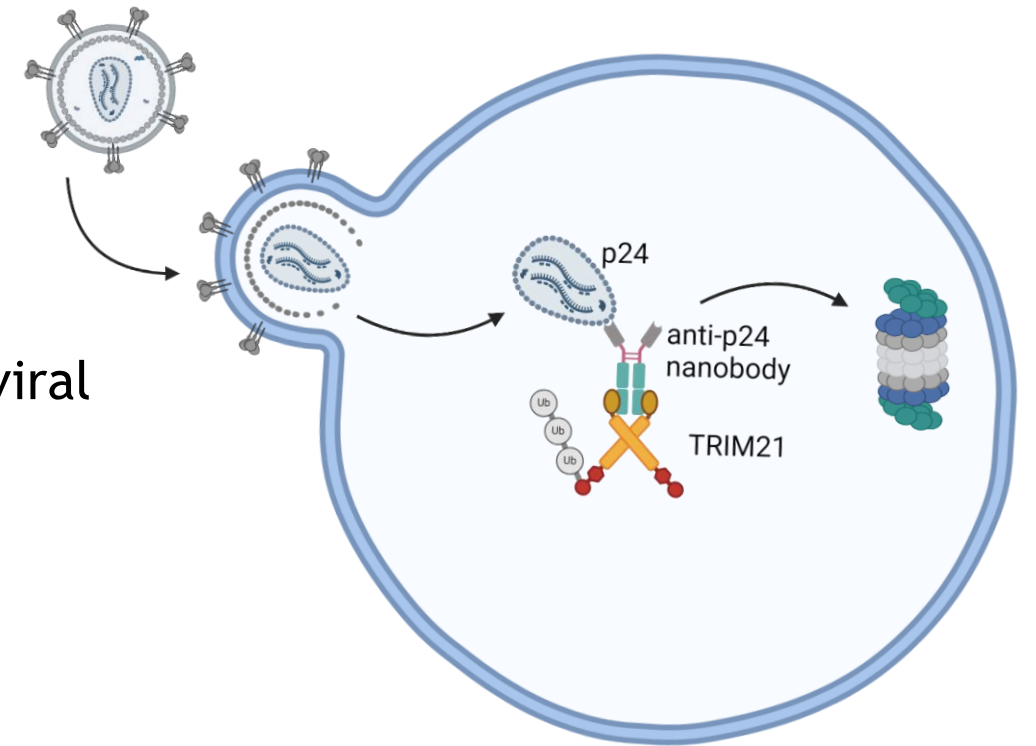




# Conclusions

We have created an anti-p24 biological which blocks production of p24 capsid in HIV-1 infected cells

This system has the potential for targeted degradation of viral proteins and host-factors in different viral infections





# Acknowledgements



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Pien van Paassen

Thomas Klaessens

Brigitte Boeser-Nunnink

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Irma Maurer

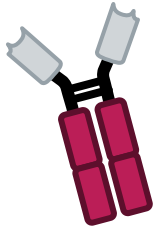
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## *Experimental Immunology*

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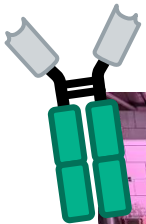
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## *QvQ*

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