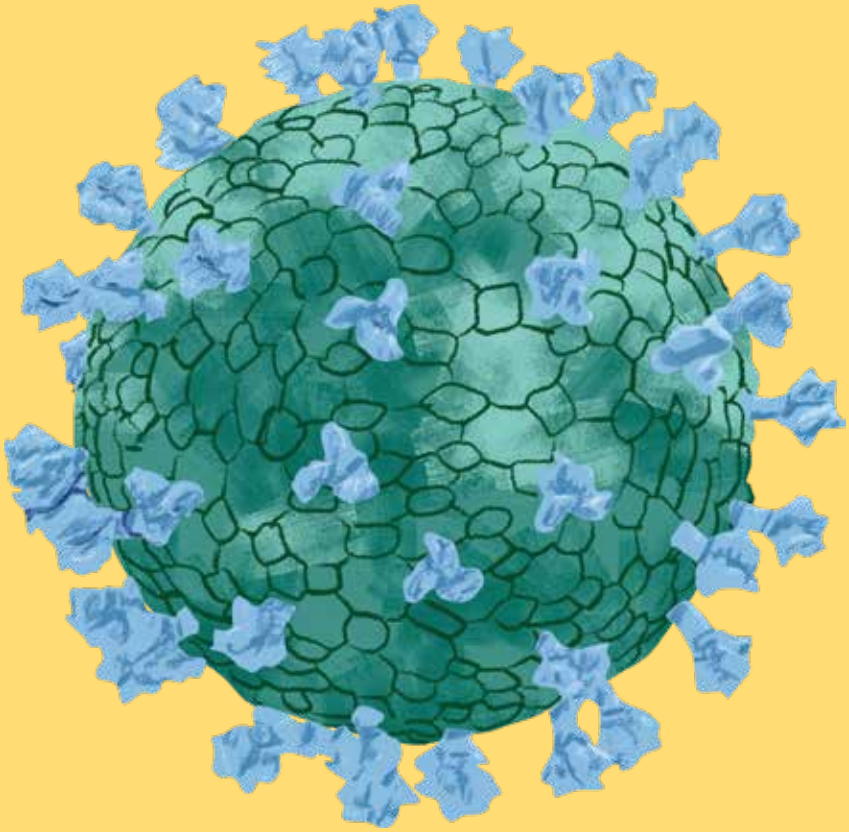
KACTUS

ImmunoPro™ VLP SuperAntigens



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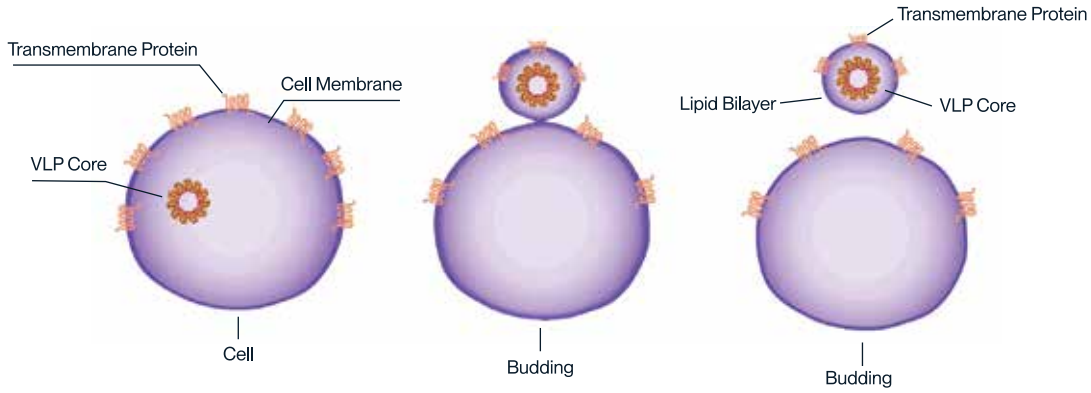
Virus-Like Particles (VLPs)

Virus-like particles (VLPs) are non-infectious particles that mimic the structure of viruses but do not contain genetic material. They are often used in vaccine development and as a tool for antibody drug discovery. VLPs can be engineered to display specific antigens on their surface, making them useful for stimulating an immune response against particular antigens.

The process of displaying antigens on VLPs involves protein engineering techniques. The genes encoding the desired antigens are co-expressed with or inserted into the VLP-forming genes in bacteria or mammalian cells. As the organism produces VLPs, the antigens are incorporated into the VLPs' surface proteins. The displayed antigens are recognized by immune cells, such as B cells, which can produce antibodies specific to those antigens.

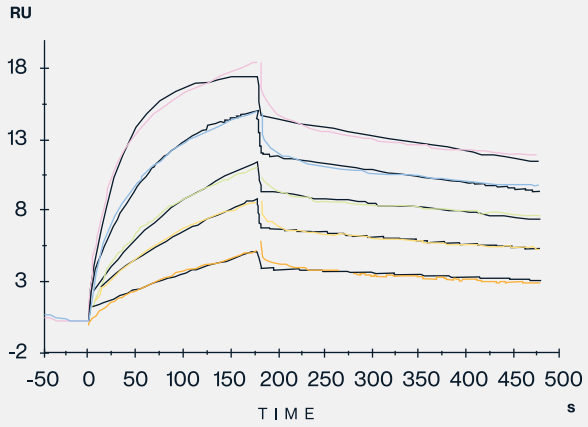
Envelope VLP Displaying Antigen



By displaying the antigens on VLPs, the particles can trigger a robust immune response without the risk of causing disease, as the VLPs themselves are non-infectious.

Case Study: Full length multi transmembrane protein GPRC5D-VLP

VLPs can be engineered to display transmembrane proteins, allowing for the presentation of important epitopes to the immune system. Displaying transmembrane proteins on VLPs can be particularly useful in antibody drug discovery and immunological studies. The three-dimensional arrangement and presentation of transmembrane proteins on VLPs can stimulate a stronger and more specific immune response.

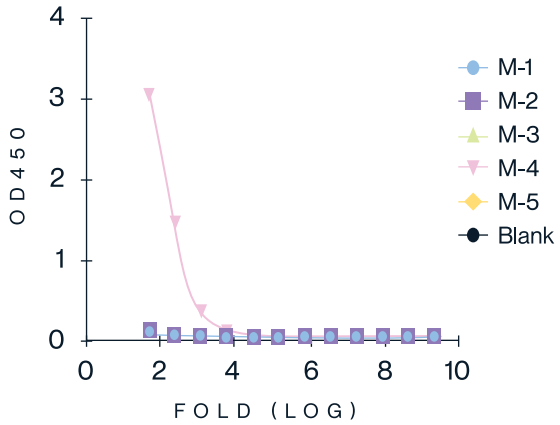


Biotinylated Human GPRC5D VLP captured on SA Chip can bind Anti-GPRC5D antibody, hFc with an affinity constant of 0.30 nM as determined in SPR assay (Biacore T200).

Case Study: Non-Envelope CD24-VLPs for boosted Immunogenicity

Non-envelope virus-like particles (VLPs) are more stable than envelope VLPs due to the absence of a lipid envelope from the host cell membrane. Non-envelope VLPs can be utilized as immunogens to trigger a potent immune response, including the production of antibodies and the activation of T cells, leading to the development of specific and durable immunity.

Animal M-1/2/3/4/5: immunized with mFc-CD24 protein
Animal M-4: immunized with VLP-CD24



Human CD24 VLP used in animal immunization can significantly increase the antibody titer, and the immune effect is significantly enhanced.

Applications

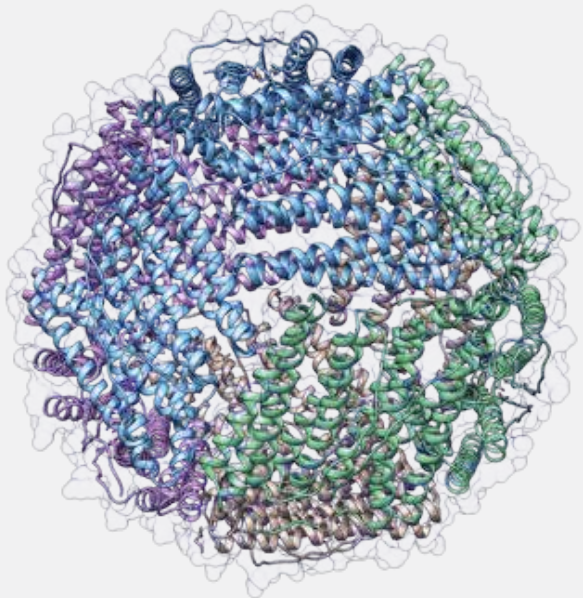
→ Immunization & Antibody Drug Discovery
→ Phage Display
→ PK/PD
→ CMC
→ ELISA
→ SPR

Features

→ Boosted immunogenicity
→ Safety (non-infectious)
→ Target antigen
→ Diameter 100-200 nm

Custom VLP Services

→ Envelope VLPs
→ Non-envelope VLPs
→ Immunization guide
→ In vivo biotinylation
→ Fluorescent label



Target	Species	Biotinylated	Exact Sequence	Express System	Catalog #
A2AR	Human	no	Met1-Ser412	HEK293	A2A-HM00R
A2BR	Human	no	Met1-Leu332	HEK293	A2B-HM00R
CB2	Human	no	Met1-Cys360	HEK293	CB2-HM0B2
CCR2b	Human	yes	Met1-Leu360	HEK293	CCR-HM02BB
CCR2b	Human	no	Met1-Leu360	HEK293	CCR-HM02B
CCR7 (Nanodisc)	Human	no	Met1-Pro378	HEK293	CCR-HM107
CD20	Human	no	Met1-Pro297	HEK293	CD2-HM122
CD24	Cynomolgus	no	Ser26-Gly57	HEK293	CD2-CM124V
CD24	Human	no	Ser27-Gly59	HEK293	CD2-HM124V
Claudin 18.2	Human	yes	Met1-Val261	HEK293	CLD-HE1822B
Claudin 18.2	Human	no	Met1-Val261	HEK293	CLD-HE1822
Claudin 4	Human	no	Met1-Val209	HEK293	CLD-HM104
Claudin 6	Human	yes	Met1-Val220	HEK293	CLD-HM006B
Claudin 6	Cynomolgus	no	Met1-Val220	HEK293	CLD-CM006
Claudin 6	Human	no	Met1-Val220	HEK293	CLD-HM006
Claudin 6	Mouse	no	Met1-Val219	HEK293	CLD-MM006
GPC3 (438-554)	Human	no	Arg438-Asn554	HEK293	GPC-HM003
GPC3	Human	no	Gly510-Asn554	E.coli	GPC-HE005
GPRC5D	Human	yes	Met1-Val345	HEK293	GPR-HM05PB
GPRC5D	Human	no	Met1-Val345	HEK293	GPR-HM05P
GPRC5D	Cynomolgus	no	Met1-Cys300	HEK293	GPR-CM05P
GPRC5D	Mouse	no	Met1-Leu344	HEK293	GPR-MM05P
SSTR2	Human	no	Met1-Ile369	HEK293	STR-HM002
TM4SF1	Human	no	Met1-Cys202	HEK293	TSF-HM002
VLP Control	Human	no	---	HEK293	VLP-HM00C
VLP Control	Human	yes	---	HEK293	GPR-HM05CB

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