

Single domain antibodies (sdAbs), also known as VHH antibodies, are a promising next-generation therapeutic antibody technology for cancer immunotherapy and other applications.

Biointron, a well-recognized leader in the field of VHH antibody discovery, leverages advanced phage display technology and a high-throughput antibody expression platform. Our team of scientists specializes in the production and discovery of unique single domain antibodies, positioning us at the forefront of this innovative field.



VHH ANTIBODY DISCOVERY



Self-Owned Alpaca
Breeding Farm

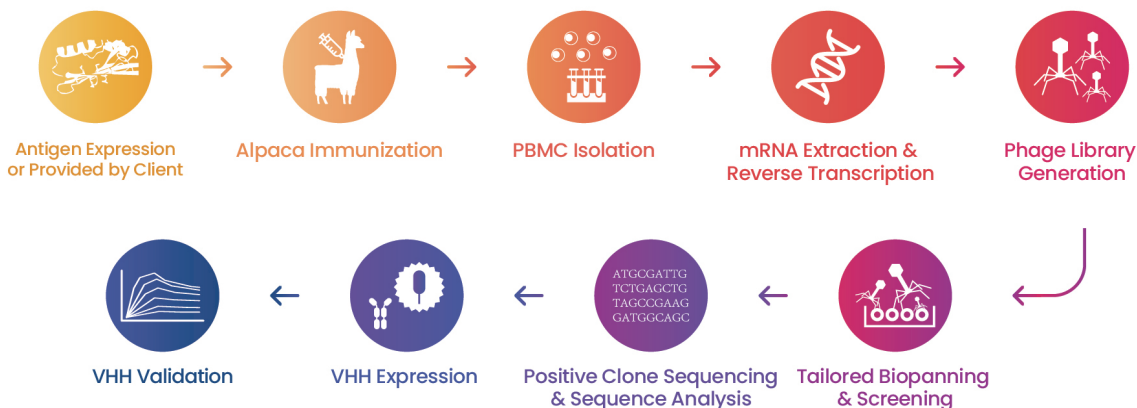


200+ Projects
Delivered



High Diversity &
Large Capacity

WORKFLOW



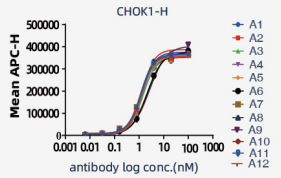
www.biointron.com
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20 Bridge St, Metuchen, NJ 08840
No.99-1, Shenmei Road, Zhoupu, Pudong, Shanghai, China

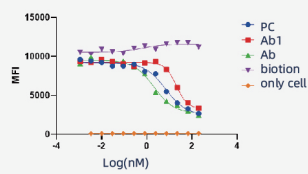
HITS CHARACTERIZATION

Biointron has established antibody characterization platforms including binding activity, ligand blocking activity, internalization, and affinity determination for your downstream applications.

Cell-based binding (FACS)

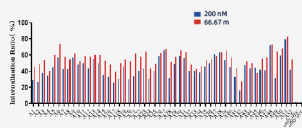


Ligand blocking assay

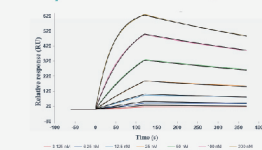


Internalization assay

Internalization assay on CHOK1-H cells(2h)



Affinity determination (Biacore 8K)

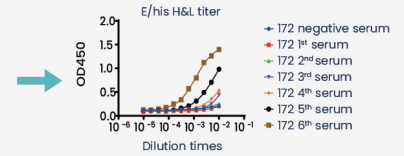


BREAKING IMMUNE TOLERANCE

Human protein E is highly homologous to the alpaca protein, therefore the alpaca immune response is weakened, reducing antibody generation. To address this issue, Biointron developed proprietary methods to engineer protein E to stimulate helper T cells and boost antibody generation.

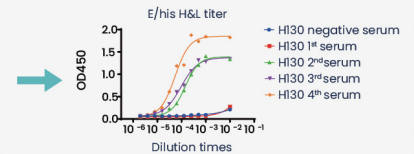
Protein E as immunogen

Serum	H&L Titer
172 negative serum	(0,100)
172 1 st serum	(0,100)
172 2 nd serum	(0,100)
172 3 rd serum	100
172 4 th serum	200
172 5 th serum	800
172 6 th serum	3200



Optimized immunogen

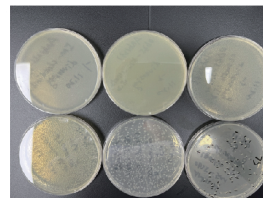
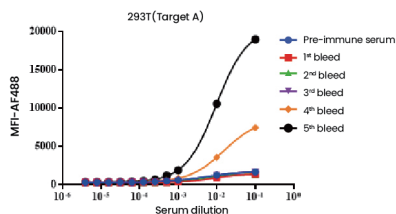
Serum	H&L Titer
HI30 negative serum	100
HI30 1 st serum	100
HI30 2 nd serum	32000
HI30 3 rd serum	32000
HI30 4 th serum	128000



CASE STUDY

VHH ANTIBODY DISCOVERY (Multi-transmembrane target A)

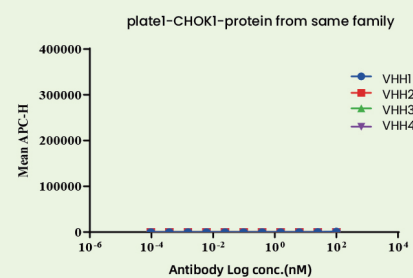
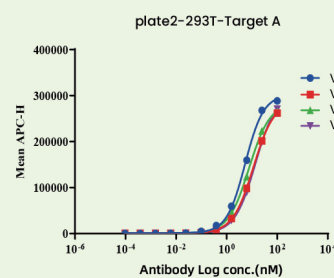
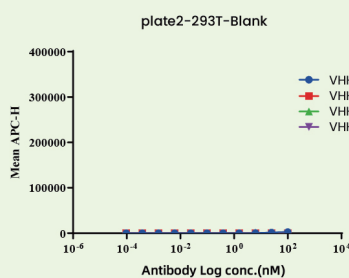
First, we immunized alpacas with DNA-encoding Target A, and then boosted their immune response by Target A-overexpressing cell line. Alpaca serum can specifically bind to Target A-overexpressing cells but not to blank cells.



- ✓ Phage Library construction from PBMC
- ✓ Library size is ~1.1x10E10
- ✓ Insert rate >95%

Antigen	Immunization
DNA encoding Target A	1&2
CHO-K1-Target A	3,4,5

Plate #	Total clone	OD450 (293T-Target A) > 0.5	OD450 (293T-blank) > 0.1	combined with Target A clone number	Targeted clone%	Unique
0635-Human Target A	88	2	0	2	2.27%	1
0635-Human Target A	88	18	12	6	6.82%	2
0635-Human Target A	88	55	41	14	15.91%	10



Among the purified antibodies, 4 of them can bind specifically to target A.