

Human Nanobody Screening

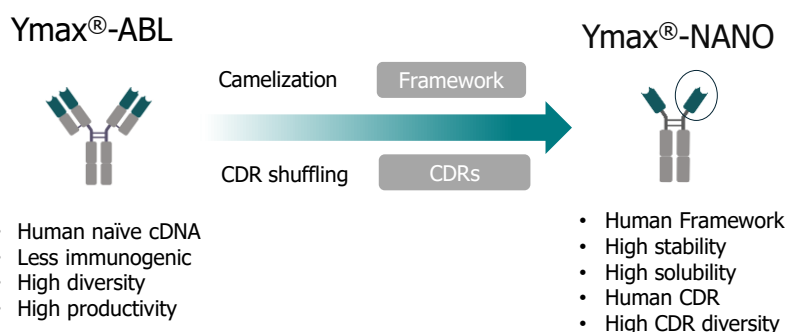
A collection of nanobody structures, which are small, single-domain antibody fragments, shown in various orientations and colors (blue, green, yellow) against a dark background. They have a Y-like shape, characteristic of antibodies.

Drive Value with
Novel Immuno-Oncology Products Based on
Proprietary Discovery Platform

Y-BIOLOGICS

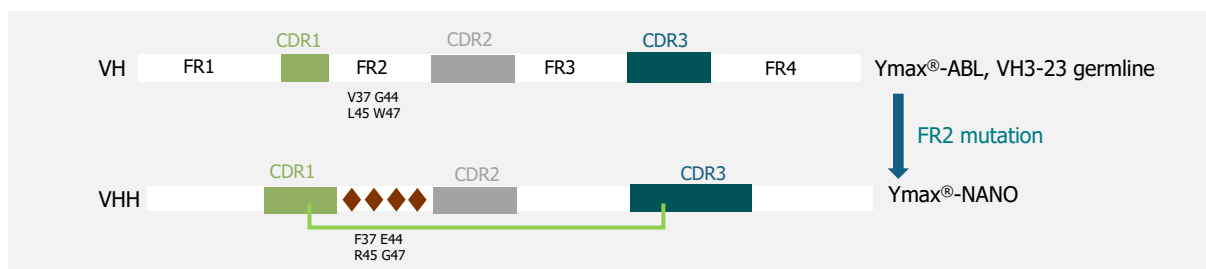
Human Nanobody Screening

We can provide heavy chain antibody(VHH) candidates through screening using our own single-domain antibody library(Ymax®-NANO).



• Ymax®-NANO

| Framework | CDR Source | CDR3 Lengths | Library Size (CFU) |
|----------------|--------------|-------------------|----------------------|
| Human Germline | Naïve(human) | CDR3 : 8-22(A.A.) | 1 x 10 ¹⁰ |



• Advantage of the Nanobody screening

- Small Size and High Stability
- Ease of Production
- High Affinity and Specificity
- Versatility
- Reduced Immunogenicity

• Our Unique Advantages

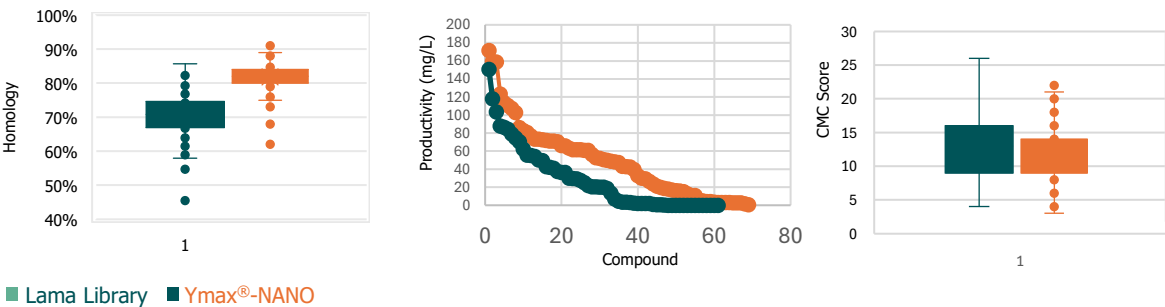
- Unique platform to discover antibodies : Ymax®-NANO
- Binders : At least 2-3 unique binders
- IP free : Provide full rights to the generated antibody

• Service Process

| Service Step | Service Description | Period |
|-----------------------------|--|------------|
| Biopanning | Library preparation : Ymax®-NANO | 1 Month |
| Monophage analysis | Monophage ELISA, Clone sequencing | 1 Month |
| IgG conversion & production | Cloning for final hit phage clone Transient expression and purification of antibody | 1 Month |
| Antibody characterization | ELISA, BLI, SPR analysis | 1-2 Months |

• Lama Library vs. Ymax®-NANO

| Homology with Human Germline | | Productivity | | CMC Score | |
|------------------------------|------------|--------------|------------|--------------|------------|
| Lama Library | Ymax®-NANO | Lama Library | Ymax®-NANO | Lama Library | Ymax®-NANO |
| 70% | 82% | 28 mg/L | 48 mg/L | 13 | 11.7 |



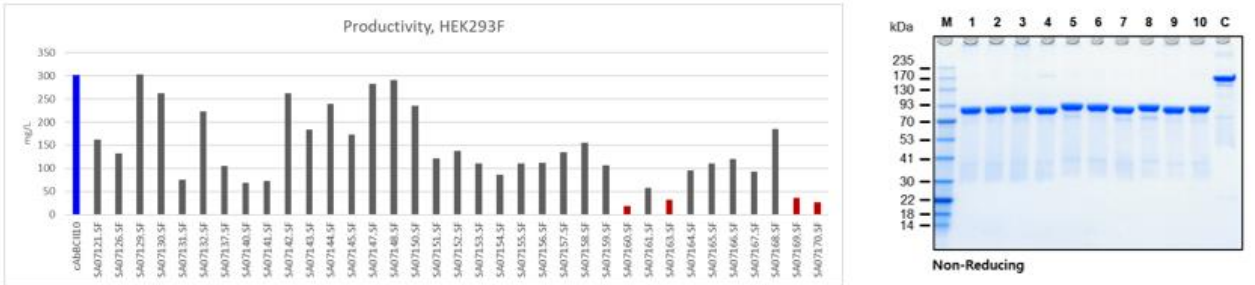
• Case Study

Case 1. VHH Antibody Screening of 5 Targets (Monophage -> Hit -> Unique clones, ELISA/FACS binder)

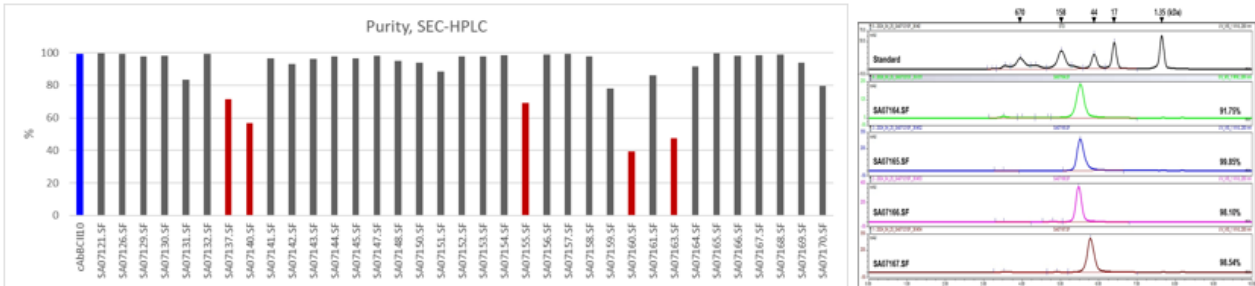
| No | Target | Mono | Hit | Unique clones | ELISA binder | FACS binder |
|----|--------|------|-----|---------------|--------------|-------------|
| 1 | B7-H3 | 192 | 97 | 6 | 6 | 6 |
| 2 | GPRC5D | 384 | 243 | 54 | 50 | 50 |
| 3 | HSA | 384 | 110 | 15 | 11 | - |
| 4 | BCMA | 384 | 13 | 5 | 4 | 3 |
| 5 | TROP2 | 384 | 284 | 28 | 28 | 11 |

Case 2. VHH Antibody Screening (Target : GPRC5D)

Productivity (140mg/L)



Purity (90%)



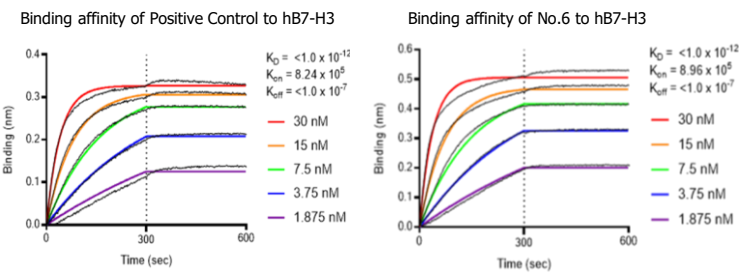
• Case Study

Case 3. VHH Antibody Screening (Target : B7-H3)

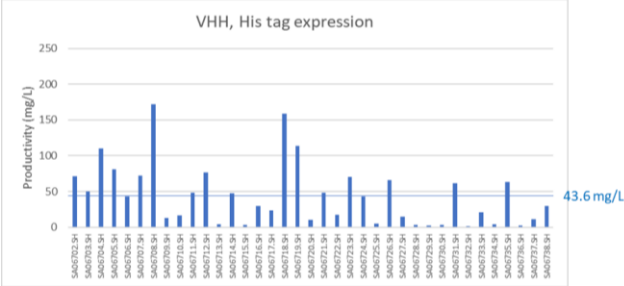
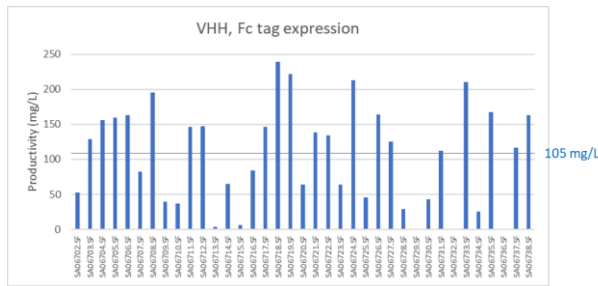
ELISA Data

| No. | Name | B7-H3 |
|-----|----------------|-------|
| 1 | CELL ONLY | NA |
| 2 | anti-mIgG-FITC | NA |
| 3 | TAR0045DO01 | 4.000 |
| 4 | TAR0045DO01 | 4.000 |
| 5 | TAR0045DO01 | 4.000 |
| 6 | TAR0045DO01 | 3.961 |
| 7 | TAR0045DO01 | 3.825 |
| 8 | TAR0045DO01 | 3.981 |
| 9 | hlgG1 | 0.044 |

BLI Data

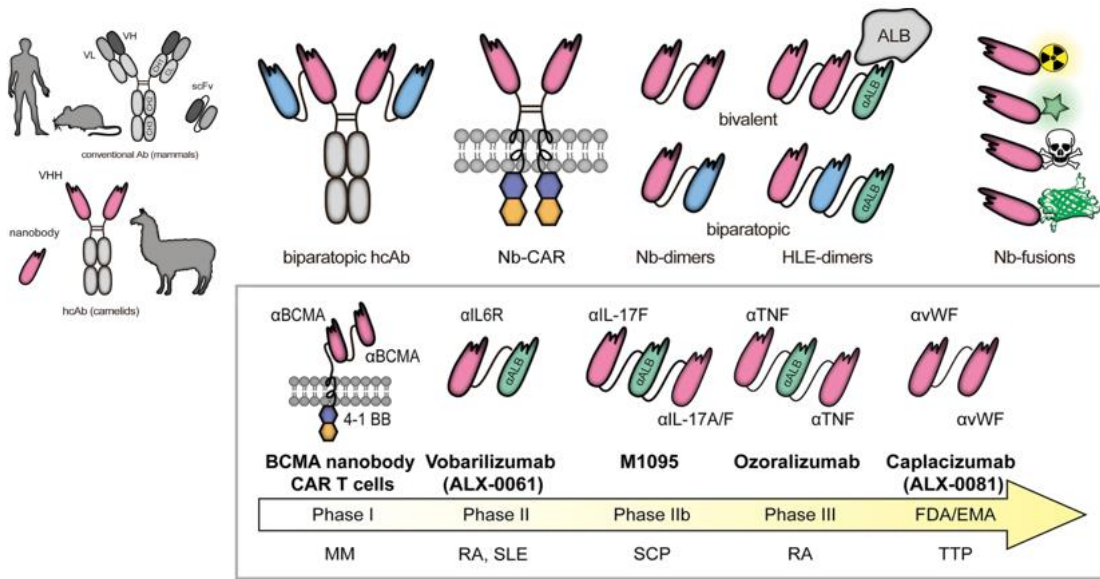


Production



• Application

You know single-domain antibodies are revolutionizing research and therapeutics. Their unique properties-such as high stability, small size, and exceptional specificity-make them ideal for tackling challenging targets in diagnostics, drug delivery, and beyond. And you don't need to add antibody humanization. That's why Ymax®-NANO is a fully human library for single-domain. BsAb, CAR-T, etc.



Cell and Tissue Research (2021) 385:445–456