

ANTIBODY ENGINEERING SERVICES

Antibody humanization and affinity maturation

Antibody Humanization



10-year experience
300+ antibody humanization projects delivered



As fast as **6 weeks**
to get desired humanized antibody



Combining **CDR-grafting**
with structure-based
back mutation



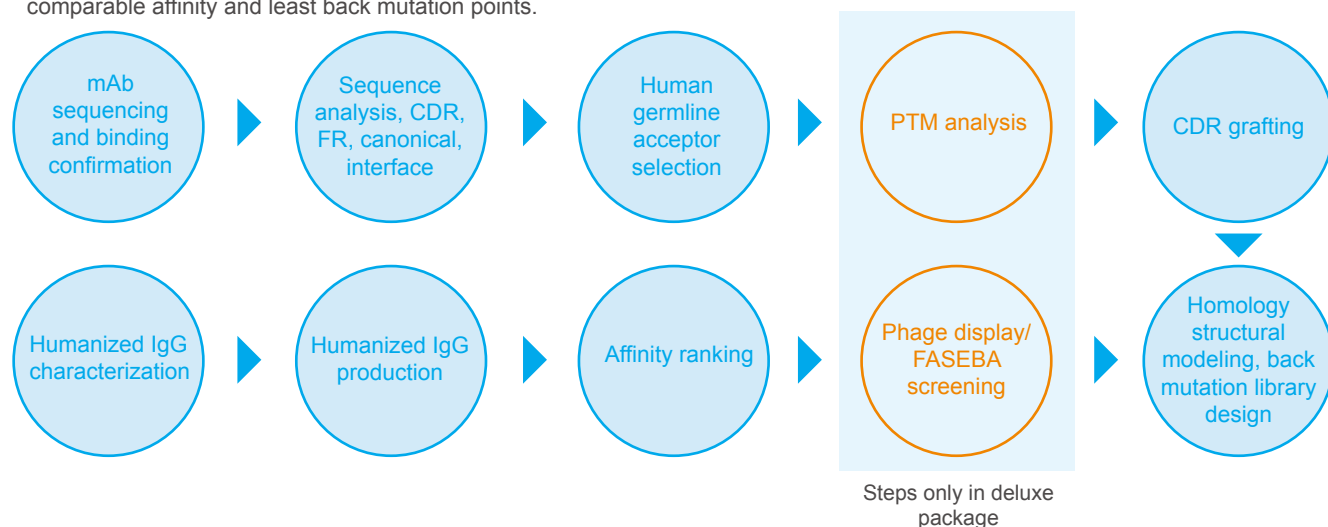
Guarantee comparable
binding affinity with
parental antibody

Deluxe Package

- Patented FASEBA(Fast Screening for Expression, Biophysical-properties and Affinity) screening platform to screen affinity, thermostability, expression level & epitope, no royalty burden
- Guaranteed delivery of best humanized antibodies with comparable affinity and least back mutation points.

Express Plus Package

- Fast turnaround time: **6 weeks**
- Guaranteed at least one humanized antibody with comparable affinity with parental antibodies



Affinity Maturation

- **30+** affinity maturation projects delivered
- As fast as **8 weeks** to deliver your antibody sequences with desired affinity

PML Library Based Deluxe Package

Guarantee **5-10 fold** affinity improvement

In a PML (precise mutagenesis library) library, saturation mutations are performed on about 65 amino acids in all six CDR regions. Each amino acid is mutated into the other 19 amino acids with the same distribution.

Together with FASEBA screening we can guarantee to increase the antibody affinity to target antigen by 5-10 fold. In our past case, we have successfully increased the affinity by 100 fold from 10^{-10} to 10^{-12} .

1

Parental IgG binding confirmation

2

PML library construction

3

FASEBA screening and ranking (single residues)

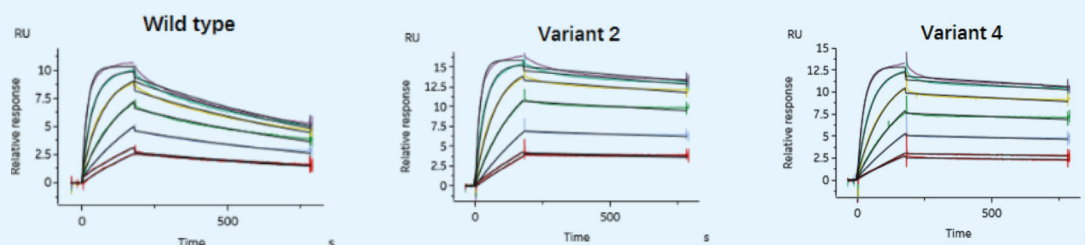
4

Combinatorial mutation library screening and ranking by FASEBA

5

Affinity matured IgG production and characterization

Case Study



Ligand	Analyte	Chi ² (RU ²)	k _a (1/Ms)	k _d (1/s)	KD (M)	Rmax (RU)
Target A	Wild type	1.61E-02	5.61E+06	1.07E-03	1.91E-10	9.7
Target A	variant 2	3.69E-02	6.42E+06	2.13E-04	3.32E-11	15.2
Target A	variant 4	2.54E-02	4.38E+06	1.74E-04	3.97E-11	12

Affinity improved by 17 fold from 10^{-10} to 10^{-11}

Phage Display Library Based Economical Package

Guaranteed affinity improvement to **nM level, starting from \$37K**

WT Ab confirmation

WT phage plasmid gene synthesis and confirmation

Phage library construction by combinatorial mutation in VCDR3 and HCDR3

Phage panning and screening

Final lead delivery

Affinity confirmation

Candidates IgG conversion

Candidates selection



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