Antibody Humanization

The **design** of grafted or resurfaced antibodies often involves an iterated approach where sequence designs are generated and tested in binding and/or functional assays. Repeated analysis, construction and test procedures are required to achieve better humanization.

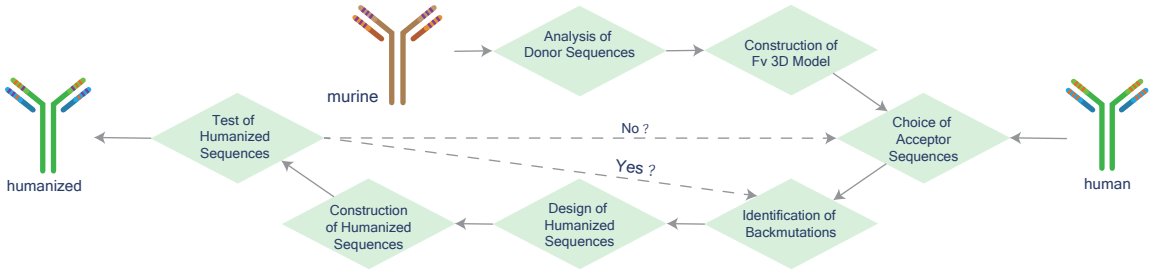
In CDR-, FR-, and SDR-**grafting methods**, all or part of the variable or framework regions of both murine and human antibody genes are amplified to generate the recombinant plasmids, which are finally applied to produce humanized antibodies in bacterial or mammalian systems.

In **chain shuffling method**, the light chain of the rodent antibody is replaced by light chains in human antibody libraries; the resulting hybrid antibody library is screened by panning against the certain antigen. The heavy chain of the selected hybrid antibody is replaced by heavy chains of human antibody library. Subsequent screening of this secondary chimeric library will produce fully humanized antibodies.

Except for chain shuffling method generating fully humanized antibodies, grafting methods can generate antibodies of different **humanization degrees**. The single or combined replacements of complementarity determining regions, framework regions and specificity determining residues respectively of a rodent antibody by the corresponding regions of human antibody can respectively generate the CDR-grafted, CDR & FR grafted, and SDR-grafted humanized antibodies.

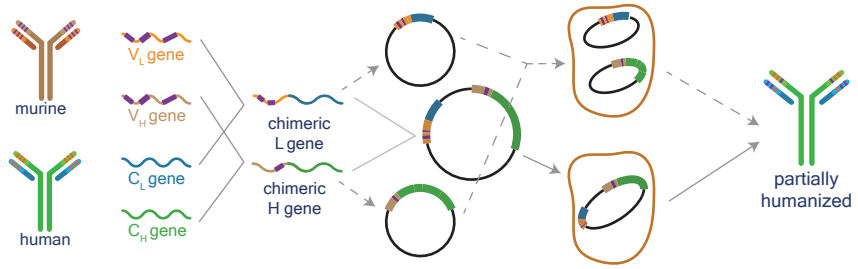
Creative Biolabs Antibody Humanization Services

1 Design Map

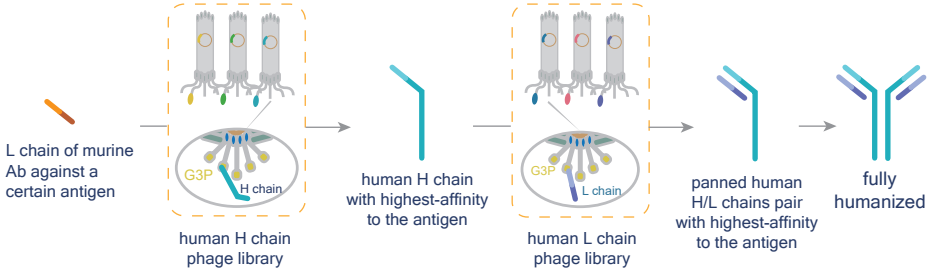


2 Methods

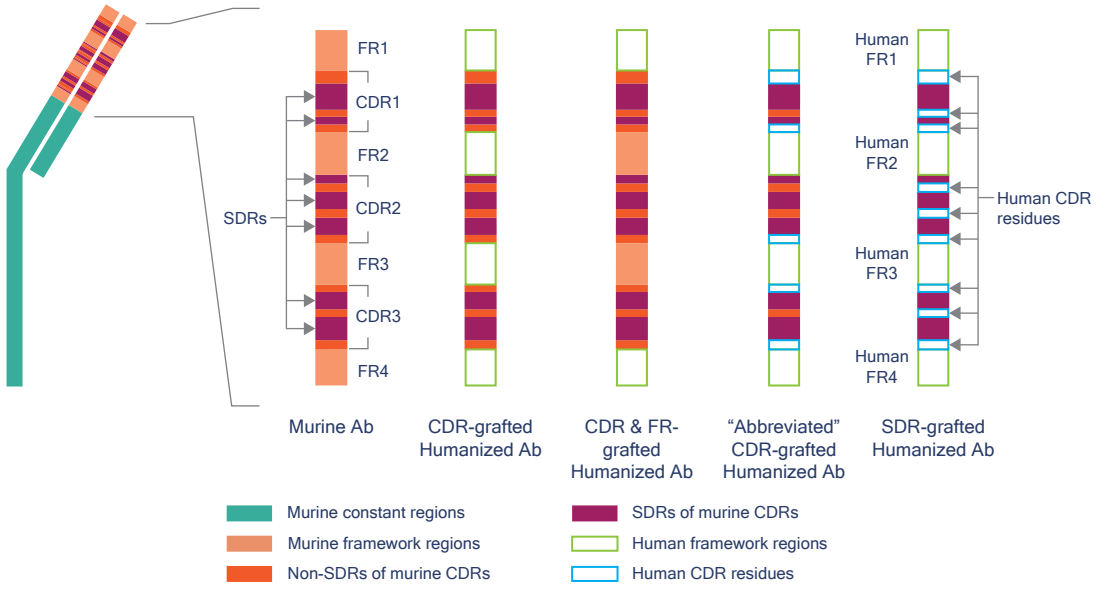
Grafting



Chain Shuffling



3 Humanization Degrees



What we do:

- **Sequence and structure analysis**
- **Construction, expression, identification and biopanning of humanized antibodies**
- **Multiple-degree humanization**
- **Affinity and immunogenicity verification**

Features:

- **Multiple humanization degrees**
- **Integrated antibody affinity maturation**
- **Proprietary *in vivo* approach to evaluate the immunogenicity**
- **Humanization to antibodies of other species**

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