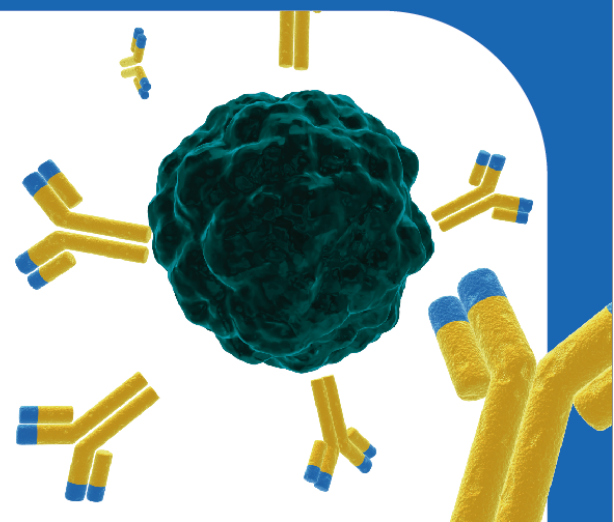# Single B Cell Screening

Unlocking High-Affinity, Antigen-Specific Antibodies with FACS

Fluorescence-activated cell sorting (FACS) enables precise isolation of antigen-specific B cells by simultaneously labeling antigens and B cell surface markers with multiple fluorescent tags. This high-throughput, highly sensitive, and accurate approach allows direct retrieval of single B cells along with their naturally paired VH/VL genes, preserving antibody affinity and functionality. The platform is widely used in therapeutic antibody discovery (cancer immunotherapy, autoimmune diseases, infectious diseases), diagnostic antibody screening (ELISA, POCT), and research applications (signal pathway studies, protein function validation).

Tsingke offers

Fast Turnaround:
Complete in 8–10 weeks — about half the time of traditional hybridoma methods

High Specificity:
Preserve natural VH/VL pairing

High Affinity:
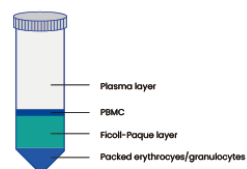Up to $10^{-8} - 10^{-12}$ M
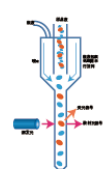
Customized Solutions:
Enable antibody discovery in mouse and rabbit to support diverse pharmaceutical, diagnostic, and research applications
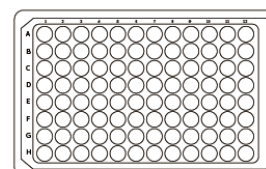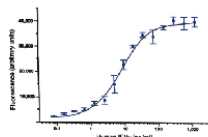

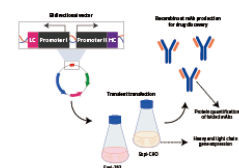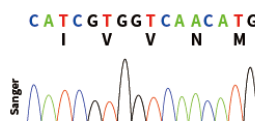Rabbit Immunization → PBMC Isolation → Flow Cytometry Single B Cell Sorting → Single B Cell VH/VL Amplification
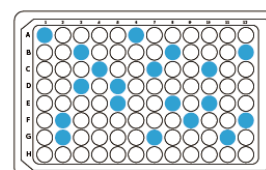
Recombinant Antibody Validation ← Recombinant Antibody Expression ← Antibody Sequencing ← Antibody Expression Screening

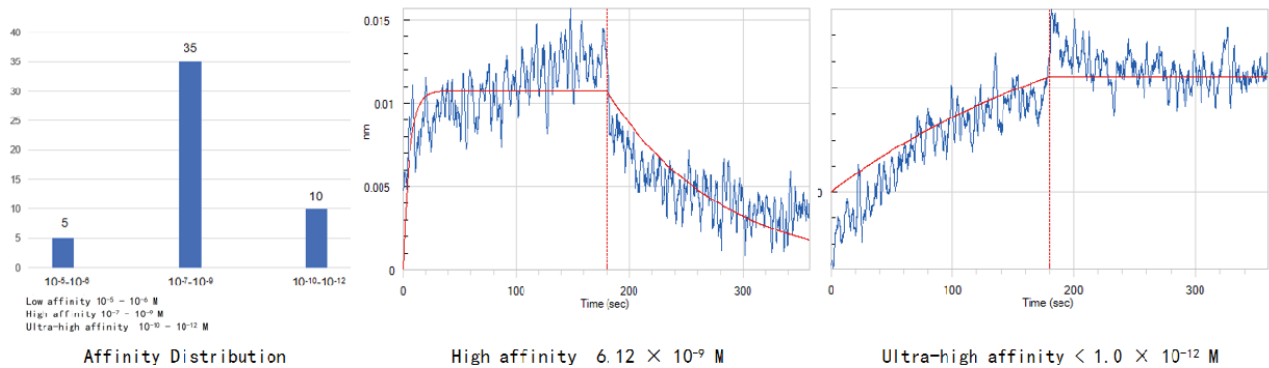**FACS-based Single B Cell Screening Workflow**

TSINGKE

Single B Cell Screening Service

Service Name	Service ID	Turnaround	Deliverables
Single B Cell Screening Service – Mouse mAb	Tsingke-B01	8-10 weeks	**Phase I** Collect 5 μL serum per animal for titer testing; select the best individual with titer ≥ 1:100 K to advance **Phase II** (1) 10 positive culture supernatants (2) 1 antibody gene sequence (3)1–3 mg of purified mAb with corresponding expression plasmids (ELISA titer ≥ 1:100 K)
Single B Cell Screening Service – Rabbit mAb	Tsingke-B02		

*Turnaround time in the table applies only when the client provides antigens.
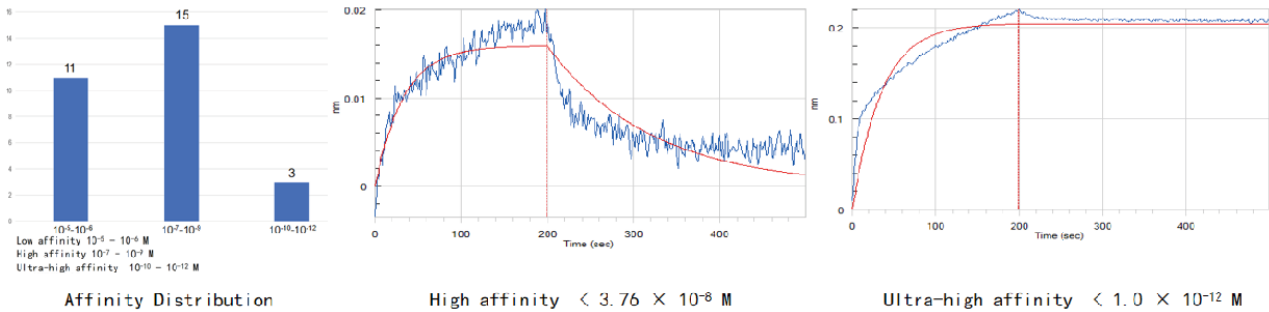
Case Study

Case 1. Mouse Single B Cell Screening

A total of 50 mouse mAbs were obtained from FACS-sorted single B cells. All bound the target antigen (100% ELISA positive) with 45 showing strong binding.

Affinity Distribution

Low affinity $10^{-5} - 10^{-6}$ M
High affinity $10^{-7} - 10^{-9}$ M
Ultra-high affinity $10^{-10} - 10^{-12}$ M

High affinity 6.12×10^{-9} M

Ultra-high affinity $< 1.0 \times 10^{-12}$ M

Case 2. Rabbit Single B Cell Screening

A total of 29 rabbit mAbs were obtained from FACS-sorted single B cells. All bound the target antigen (100% ELISA positive) with 18 showing strong binding.

Affinity Distribution

Low affinity $10^{-5} - 10^{-6}$ M
High affinity $10^{-7} - 10^{-9}$ M
Ultra-high affinity $10^{-10} - 10^{-12}$ M

High affinity $< 3.76 \times 10^{-8}$ M

Ultra-high affinity $< 1.0 \times 10^{-12}$ M