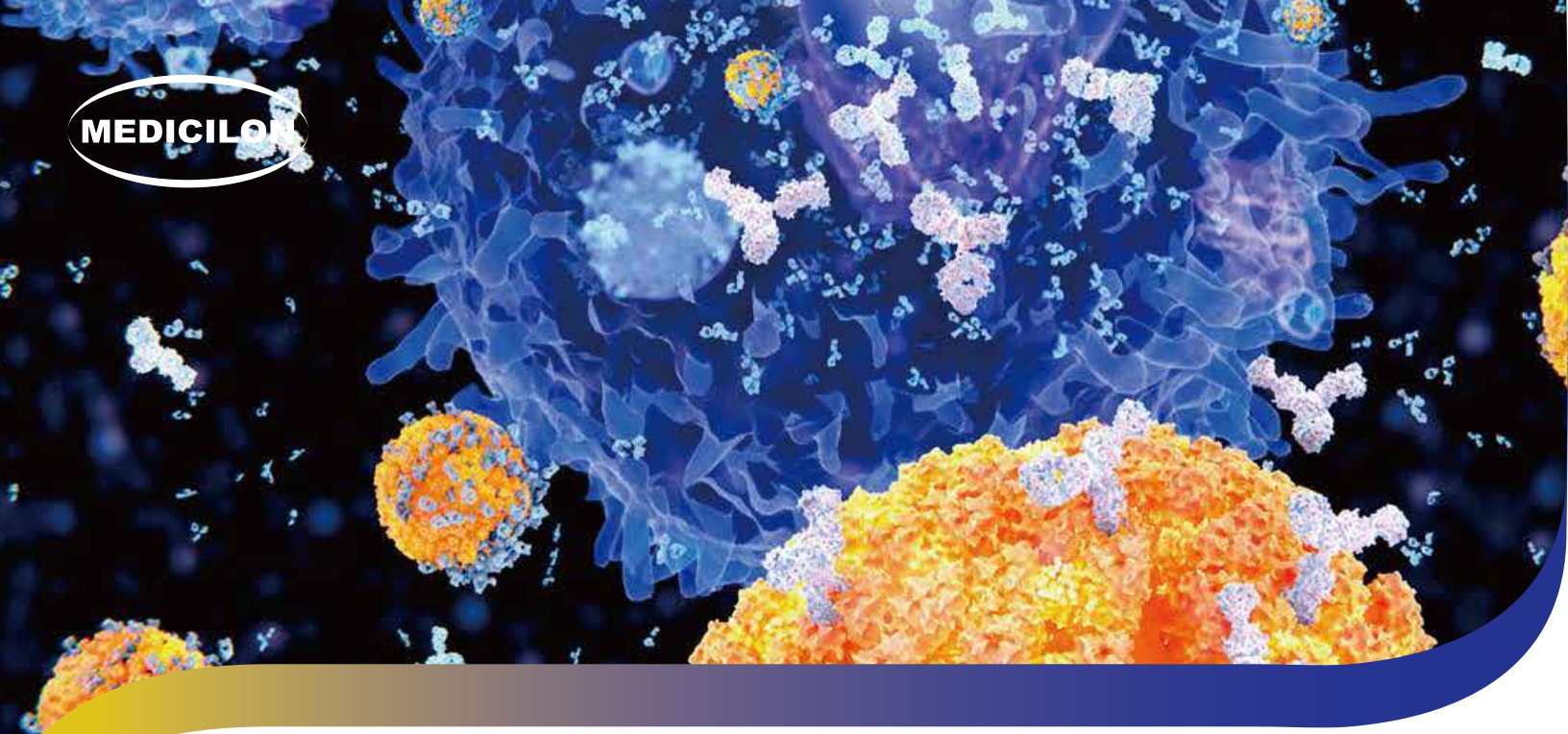


Medicilon Single B Cell Antibody Discovery Technology Platform

Single B cell screening is a newly developed technique for rapid preparation of mab in recent years. The principle is that each B cell only contains a pair of functional heavy and light chains, and each B cell only produces a specific antibody characteristic, which can be directly amplified from a single B cell to obtain mab. This method has the advantages of fast speed, high throughput, and natural pairing of variable regions of antibody weight and light chains. It is one of the new and efficient methods for antibody discovery.

Process of Single B Cell Antibody Production

Animal Immunization

- Animal immunization & antibody titer test
- 5-9 weeks

Single B Cell Sorting

- B cell enrichment, antibody labeling, flow cytometry and cell sorting
- 1 week

Sequencing & Recombinant Antibody Expression

- BCR library variable region sequencing and recombinant antibody expression
- 5-6 weeks

Single B Cell Sorting

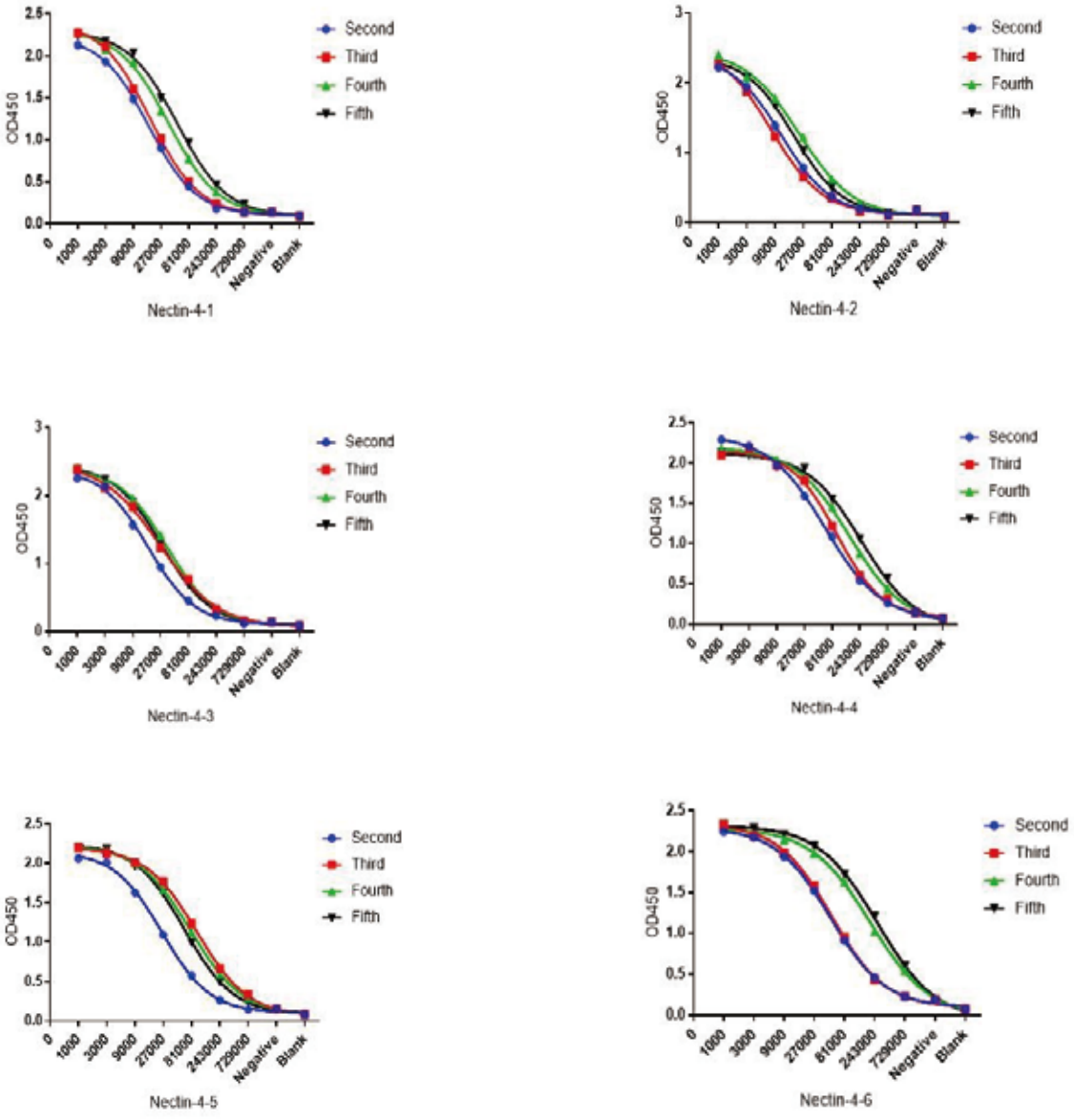
Depending on the research application, single B cells can be isolated randomly or antigen-selectively from peripheral blood or lymphoid tissues (bone marrow, spleen). For the isolation of B cells, current single B cell sorting technology include flow cytometry, magnetic bead cell sorting, micromanipulation, laser microdissection, and microfluidic sorting. Fluorescence activated cell sorting (FACS) is a mature and effective single cell sorting technology.

Single B Cell Ig Gene Transcription, Amplification, and Sequencing

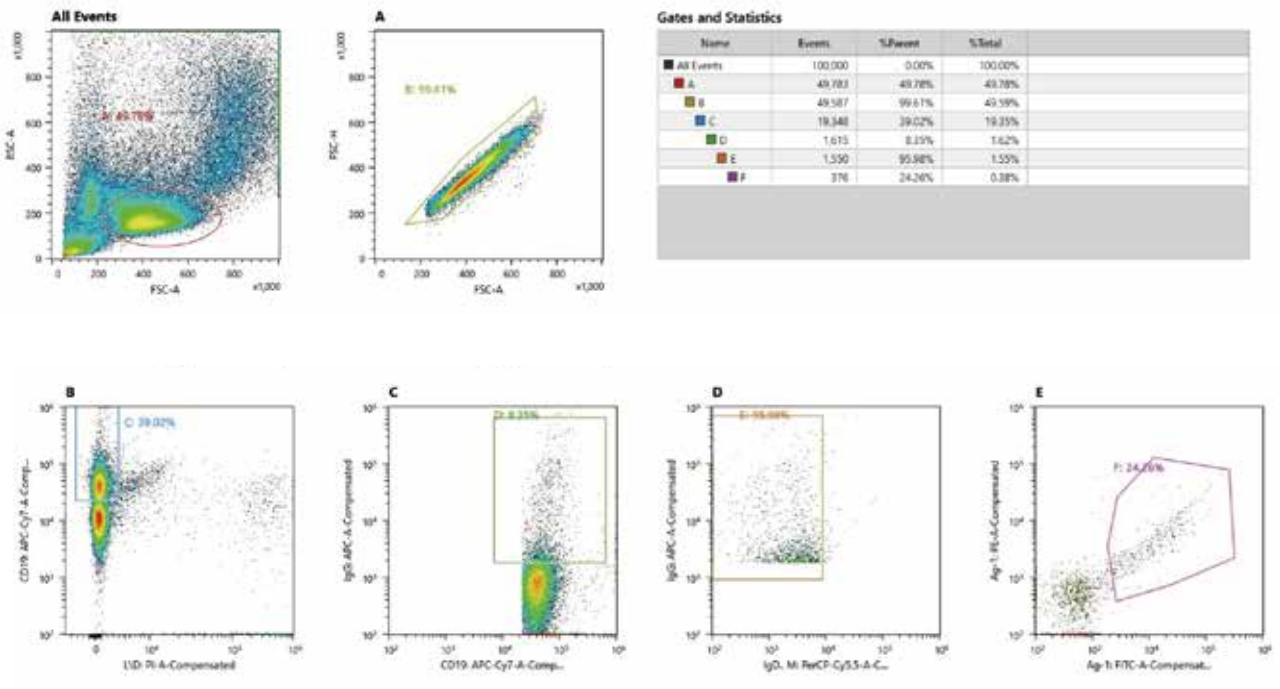
Construction of complementary DNA (cDNA) from a single B cell provides an efficient method for simultaneous analysis of expressed IgH and IgL genes. Typically, single B-cell cDNA synthesis is performed in equipment used for cell deposition and cell lysis (96-well plates, nanowell chips, etc.), which ensures easily handling of large numbers of samples and minimizes the risk of cross-contamination. Full-length Ig variable region gene transcripts were amplified by nested PCR, and RT-PCR products were used as samples for the first round of PCR for further reactions.

Regardless of the Ig variable region gene amplification strategy used, the transcriptional information of the Ig variable region genes encoding antibody-specific single B-cells was subsequently sequenced. Then using various databases such as NCBI's IgBLAST and IMGT, the rearranged V, D and J gene segments can be easily identified and analyzed for mutations, insertions and deletions.

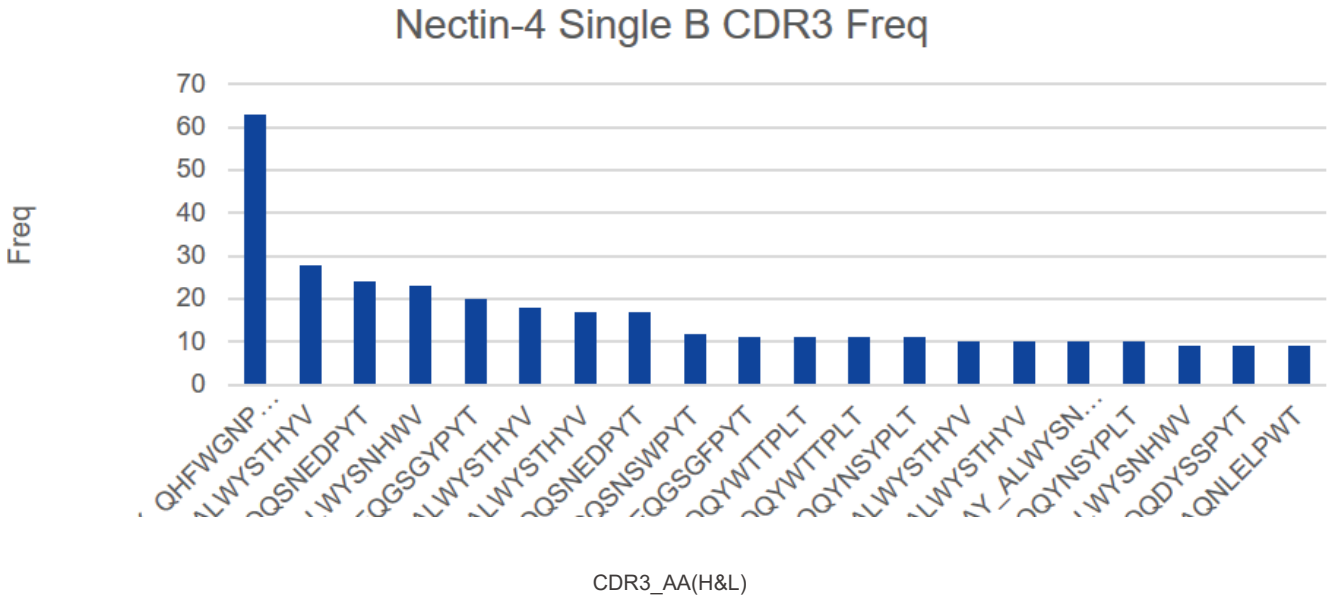
Case Study: Nectin-4 Mouse Serum Titer



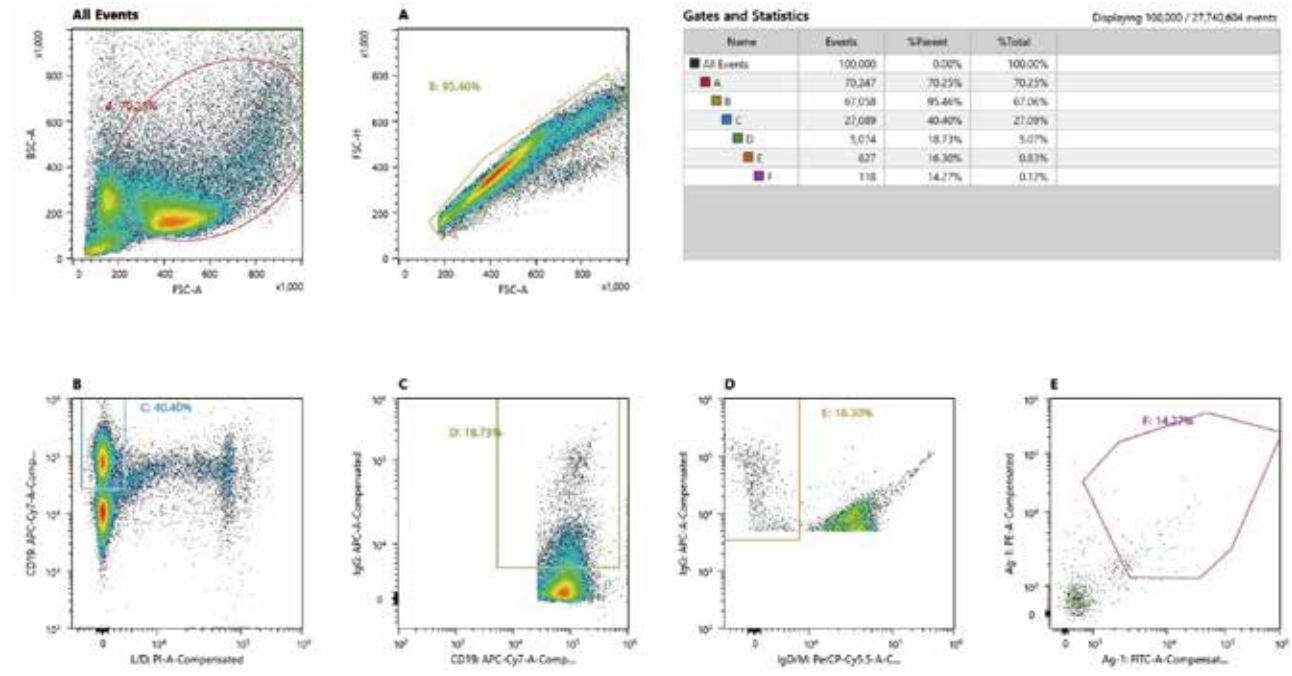
Case Study: Nectin-4 (4-1) Sorting Single B Cell



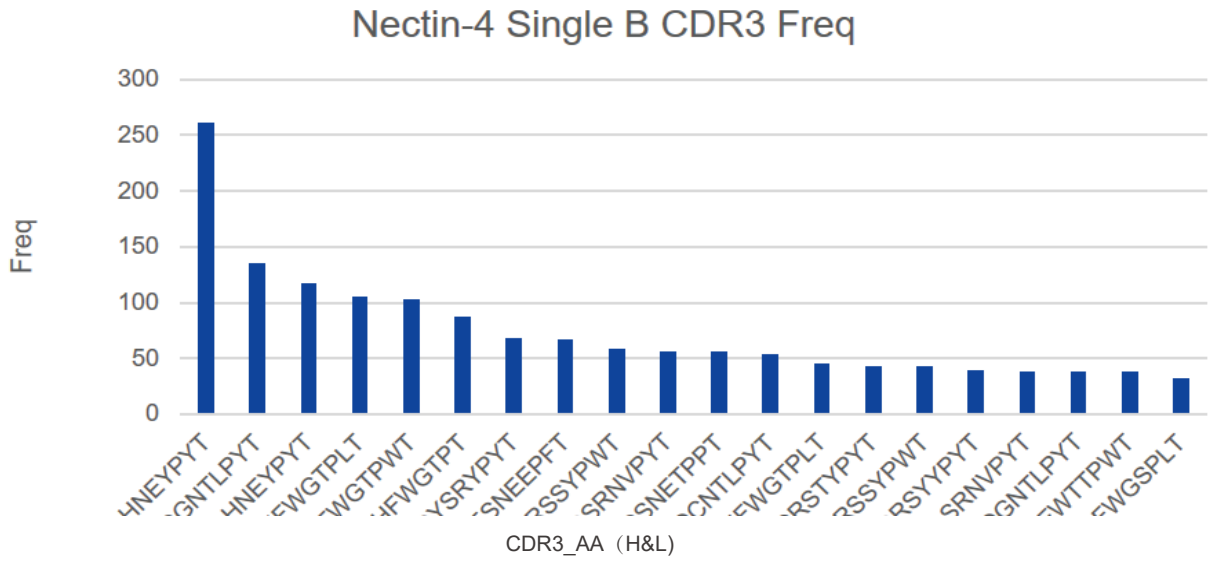
Case Study: Nectin-4 (4-1) Sequencing (Top20)



Case Study: Nectin-4 (4-6) Sorting Single B Cell



Case Study: Nectin-4 (4-6) Sequencing (Top20)



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