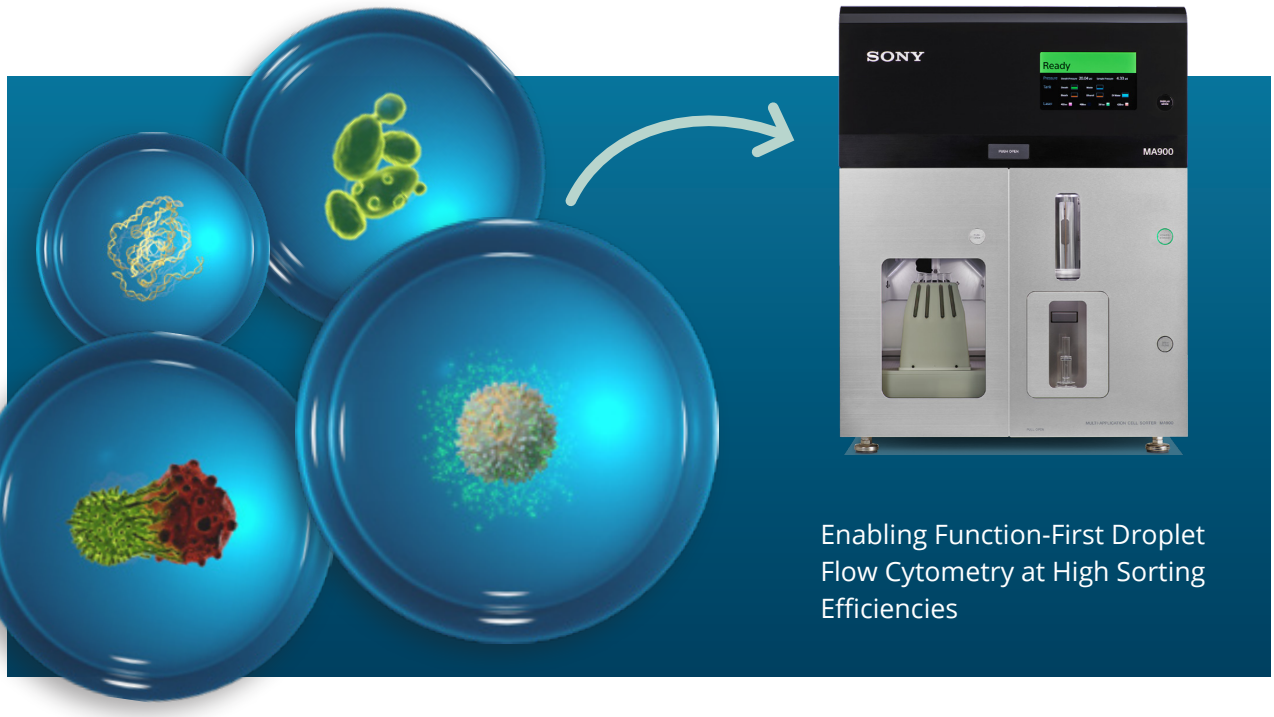
Making flow cytometry shine!

Integrated workflow for sorting double-emulsion droplets using Xdrop and Sony Cell Sorter



Xdrop and MA900 Cell Sorter: a perfect pair for function-first sorting

The **Xdrop platform**, combined with new capability of the **MA900 Cell Sorter** enables an integrated workflow for isolation of double-emulsion droplets with high efficiency and exceptional recovery rates. Xdrop encapsulates single cells or cell pairs in double-emulsion droplets, enabling functional analysis such as cytotoxicity and cytokine secretion, while ensuring no crosstalk between droplets.

This allows researchers to analyze not only the single cell but the entire cellular environment, including secretions like cytokines and antibodies, as well as cell-cell interactions – all without needing surface markers.

Coupled with Sony's MA900 Cell Sorter and its advanced software for large particle sorting, over 400,000 droplets can be analyzed per hour with high purity (>95%) and recovery rates (>96%). This makes it ideal for cellular expansion, single-cell RNA sequencing, antibody screening, and discovery analysis.

Xdrop and Sony MA900 Cell Sorter can be used together to support high-throughput studies in immunotherapy, antibody discovery, and cellular research.

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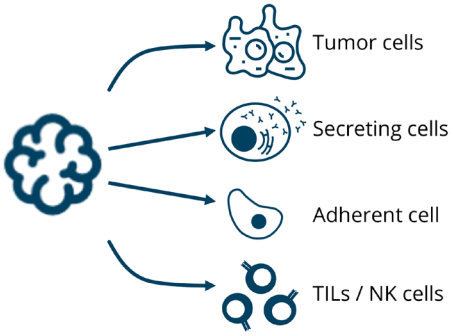
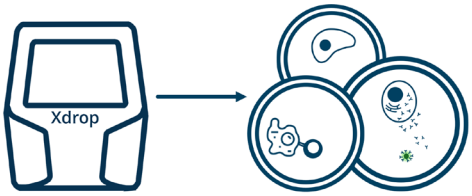
Droplet flow cytometry workflow with Xdrop

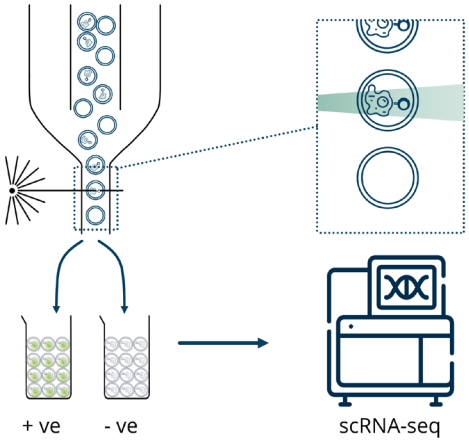
1. Isolate cells from organism



2. Encapsulate cells in droplets with Xdrop



3. Sort whole droplets using SONY sorter



4. Perform downstream analysis (e.g., scRNA-seq)

Antibody screening

High-throughput screening of mouse B cells with Xdrop for antibody discovery

Xdrop technology and MA900 Cell Sorter were used to screen mouse plasma B cells for antibody discovery.

Plasma B cells were co-encapsulated with beads that fluoresced when either antibodies or TNF-α were secreted. 610,000 droplets were analyzed, with 145,000 live cells sorted, including 1,126 TNF-α secreting cells.

This method allowed for efficient identification of high-affinity clones and provided a significantly faster alternative to traditional screening methods, with the ability to scale to millions of cells in a single day.

TILs functional analysis

Combined single-cell functional analysis and molecular profiling of TILs

Xdrop technology and MA900 Cell Sorter were used to perform high-throughput, single-cell analysis of TILs and tumor cells.

TILs and tumor cells were co-encapsulated in droplets to assess cytotoxicity, and 5,548 “killer” TILs and 11,391 “non-killer” TILs were sorted, achieving high sorting efficiency, recovery rates, and purity.

The sorted cells were then used for scRNA-seq via the 10x Genomics platform, allowing for the identification of key T-cell clones involved in tumor immunity, advancing cancer immunotherapy.

Contact Samplix for more information

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