

SimpleFlow™ Tissue Dissociation System



SINGLE CELL SAMPLE PREP RE-ENGINEERED

Cellsonics has re-engineered single cell sample preparation to capture the full potential of each and every tissue specimen. The innovative SimpleFlow tissue dissociation system enables researchers to capture important single cells in a user- and cell-friendly method.

With the SimpleFlow system:

- Maintain the native gene expression profile.
- Recover the full spectrum of heterogeneous cell populations from solid tissue samples in 4-12 minutes of hands-free processing.
- Dissociate samples at 4-8 °C **without the use of enzymes**.
- Process fresh tissue/tumor samples from needle biopsy to 500 mg in size.

BLU™ ENERGY TECHNOLOGY ENSURES CELL-FRIENDLY DISSOCIATION ACROSS CELL TYPES

The combination of the SimpleFlow automated sample handling cartridge and Bulk Lateral Ultrasonic™ (BLU) energy enables researchers to focus on data collection, not sample preparation. The SimpleFlow system automatically and gently dissociates fresh solid tissue specimens at cold temperatures using BLU technology to generate suspensions of single cells without the need for enzymatic digestion.

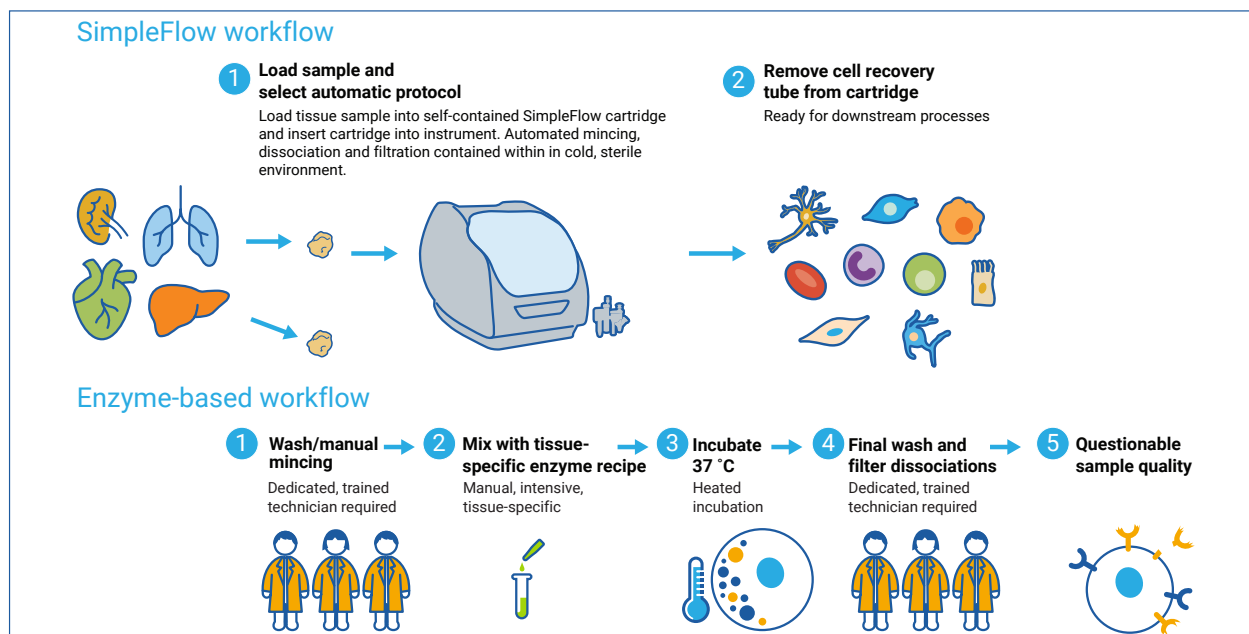


FIGURE 1: Collect single cells from solid tissues in minutes. Unlike other tissue dissociation methods, the SimpleFlow system features a hands-free workflow and requires no technical training.

Simply place the tissue specimen in the sample cartridge and then recover your cell suspension for downstream cell sorting, and single-cell data analysis methods such as RNA-Seq, FACS, and mass spectrometry.

Our simplified solution sets new standards for obtaining single cells from solid tissue with unparalleled speed, quality, and sample integrity. In addition, the novel BLU energy technology is integrated into a fluidic circuit in a single-use cartridge that provides a complete, automated dissociation workflow solution not possible using enzymatic methods.

MAINTAIN NATIVE TISSUE GENE EXPRESSION

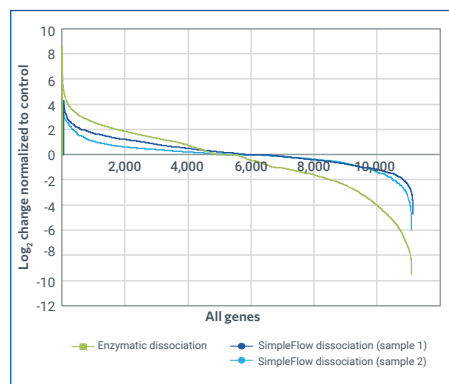


FIGURE 2: Gene expression data generated from SimpleFlow dissociated cells are more similar to normal undissociated cells than enzymatically dissociated cells. Bulk RNA-Seq gene expression data generated from tissue dissociated with the SimpleFlow system. Gene expression in SimpleFlow dissociated cells (blue lines) is closely aligned to that of the native non-dissociated tissue, whereas enzymatically dissociated cells (green line) show genes that are both over- and under-expressed compared to the control tissue. Data have been normalized to the response from intact control tissue.

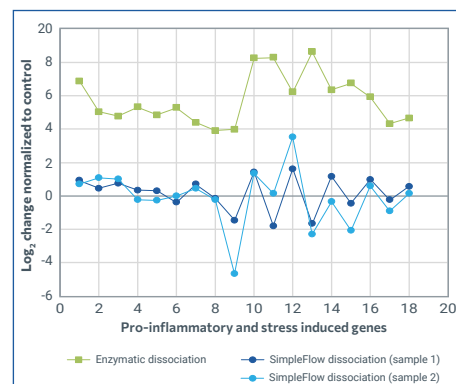


FIGURE 3: Genes associated with cell stress signals remain relatively unperturbed in SimpleFlow dissociated cells compared to enzymatically dissociated cells. Bulk RNA-Seq gene expression profiles of genes associated with cell stress. Data from porcine liver tissue dissociated with the SimpleFlow system compared to enzymatically dissociated cells and intact whole tissue. Genes associated with cell stress signals are upregulated in enzymatically dissociated cells compared to control. Data have been normalized to the response from intact control tissue.

INCREASED CELL POPULATION RECOVERY

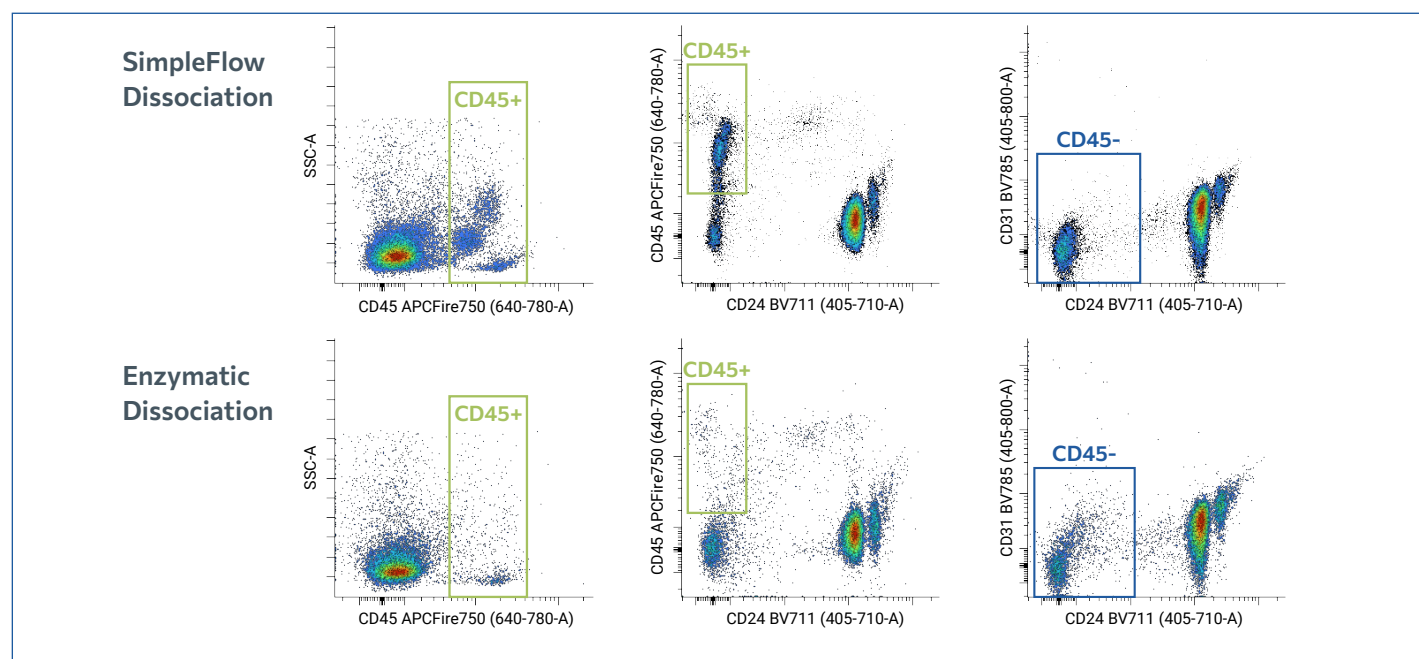


FIGURE 4: Improved cell recovery achieved with SimpleFlow. FACS analysis of dissociated mouse liver cells with the SimpleFlow tissue dissociation system vs. enzymatic dissociation methods. Cell recovery of specific cell-types including CD45+ leukocytes (green boxes), and hepatocyte progenitor cells (blue boxes) was observed to be higher with the SimpleFlow system than with enzymatically dissociated cells.