STREAMLINE YOUR TISSUE PROCESSING WORKFLOW

Using STEMprep™

Research and development across various fields, including oncology and immunology, rely on high-quality single-cell suspensions for applications such as flow cytometry and single-cell sequencing. To achieve this, effective tissue dissociation methods are essential for generating single-cell suspensions with high viability and consistency. However, conventional manual dissociation methods can be labor-intensive, inconsistent, and prone to variability, all of which can negatively affect reproducibility and data accuracy.

To address these challenges, we developed the STEMprep™ Tissue Dissociator—an automated solution that standardizes and streamlines the dissociation process. With built-in temperature control, modular scalability, and an intuitive user interface, STEMprep™ ensures efficient, reproducible, and high-yield single-cell suspensions from a wide range of solid tissues while preserving epitope integrity and cell functionality.

Why Use STEMprep™?

AUTOMATED & RELIABLE. Standardize tissue dissociation for consistent, reproducible results.

HIGH YIELD & VIABILITY. Achieve high numbers of viable, functional single cells.

BUILT-IN HEATING & COOLING. Maintain optimal processing with temperature control from 4 to 37°C.

MODULAR & SCALABLE. Start with a 4-, 8-, or 12-sample system and scale as needed.

FLEXIBLE & CUSTOMIZABLE. Use STEMCELL protocols or create your own for various tissue types and needs.

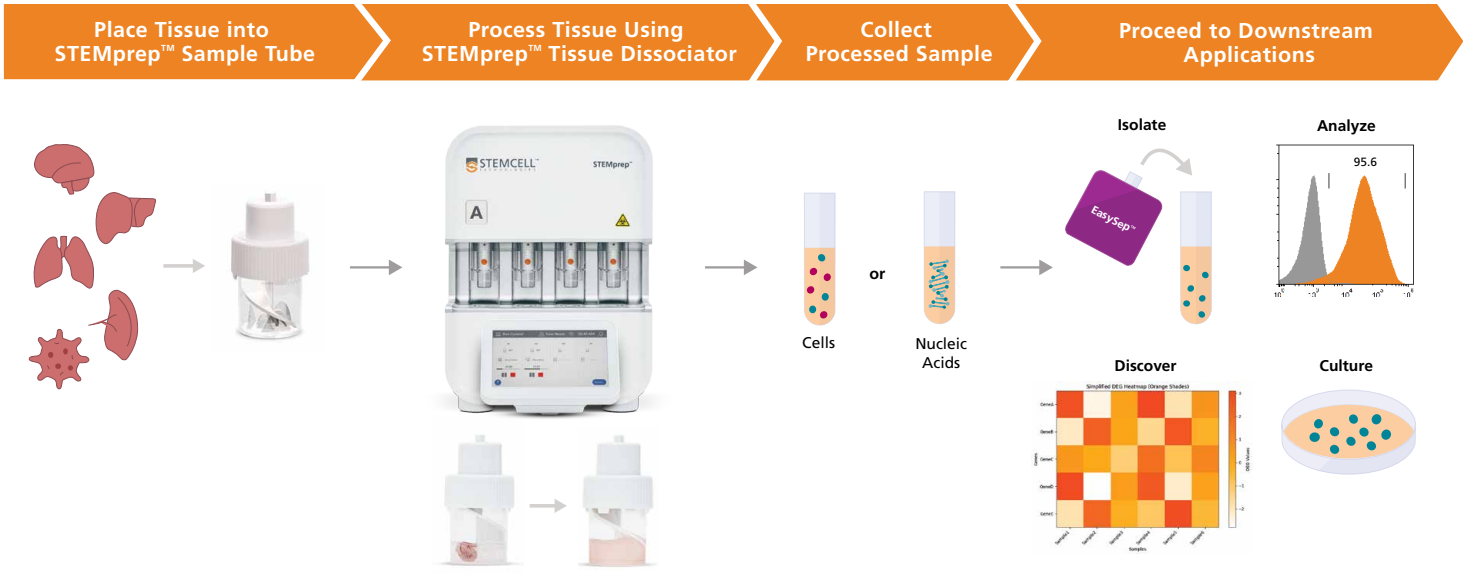

Figure 1. STEMprep™ Tissue Dissociation Workflow

The STEMprep™ Tissue Dissociator enables efficient processing of a wide range of tissue types, including mouse brain, liver, lung, spleen, and tumors. In this workflow, tissue samples are placed into a STEMprep™ Sample Tube and processed using the STEMprep™ Tissue Dissociator in combination with the appropriate STEMprep™ Tissue Dissociation Kit. Depending on the selected protocol—dissociation or homogenization—the resulting output is either a single-cell suspension or a sample suitable for nucleic acid isolation. STEMprep™-processed cells are compatible with downstream applications such as cell separation, cell culture, flow cytometry, and other assays.

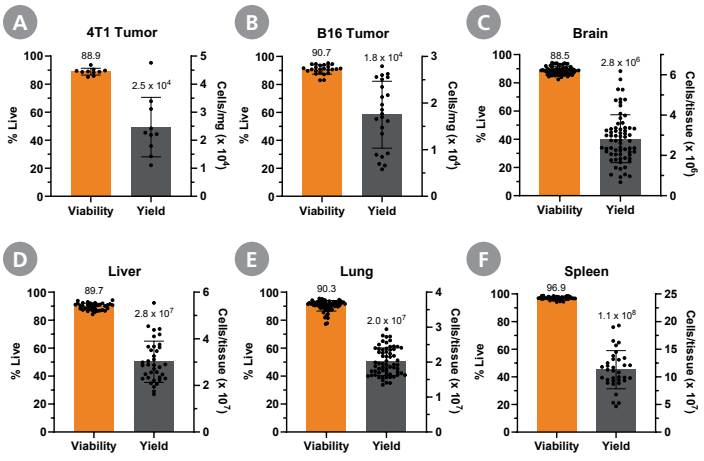

Figure 2. The STEMprep™ System Enables Reliable Automated Mouse Tissue Dissociation

Mouse tissues were dissociated into single-cell suspension using the STEMprep™ Tissue Dissociator and STEMprep™ Tissue Dissociation Kits. Viability and yield of single-cell suspensions generated from (A) 4T1 mammary tumors (n = 11), (B) B16 melanoma tumors (n = 28), (C) brain (n = 68), (D) liver (n = 37), (E) lung (n = 64), and (F) spleen (n = 35). Primary solid tumors were generated by subcutaneous injection of tumor cells into the flanks of mice. Tumor, liver, and lung samples were treated with ammonium chloride solution to lyse red blood cells. Brain samples were processed with 18% OptiPrep™ (10.8% w/v iodixanol) to remove myelin and cell debris prior to analysis. Cell viability and yield following STEMprep™ processing were assessed by flow cytometry. Data are presented as mean ± SD.

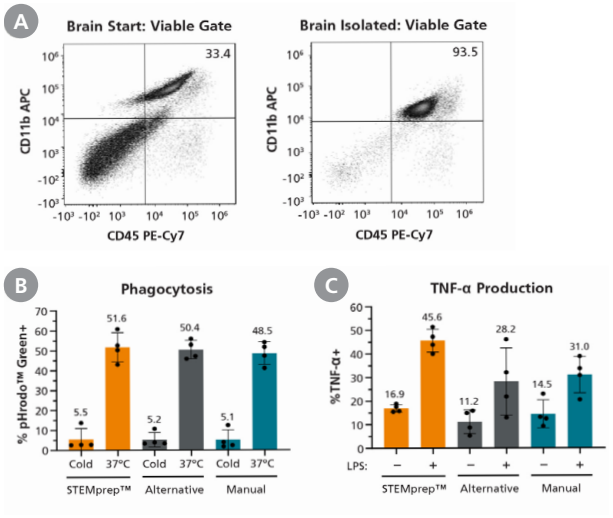

Figure 3. STEMprep™-Processed Mouse Brain Microglia Are Phagocytic and Produce Cytokines upon Activation

Mouse brain tissue was processed into single-cell suspensions using STEMprep™ Mouse Brain Dissociation Kit and the STEMprep™ Tissue Dissociator, an alternative automated system, or a manual dissociation method. (A) Brain CD11b+ microglia were isolated from the single-cell suspensions using EasySep™ Mouse CD11b+ Positive Selection Kit II. (B) The isolated CD11b+ cells were incubated for 2 hours in the presence of pHrodo™ Green-conjugated E. coli BioParticles™ at 2 - 8°C (Cold) or 37°C. The fluorescence of phagocytosed BioParticles™ was measured by flow cytometry. (C) Intracellular flow cytometry staining of TNF-α production by brain CD11b+ microglia cultured overnight in the presence of 3 µg/mL Brefeldin A and treated with (+) or without (-) 100 ng/mL of lipopolysaccharides (LPS). Data are presented as mean ± SD (n = 4).

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