

Heart Cell Isolation Bundle

For the automated isolation of high-viability heart cells for single-cell genomic applications.

Description

The **Heart Cell Isolation Bundle** is specifically designed to address the varying cell sizes in heart tissue, making it ideal for isolating diverse cell populations, including cardiomyocytes. Seamlessly integrating with the Singulator™ Platform, this easy-to-use, automated solution includes **Large Cell Isolation Cartridges** and **Heart Reagents** to streamline the process. Capable of processing tissue samples as small as 20 mg, it ensures high-yield, high-viability cell isolations, making it an optimal choice for downstream genomic applications.



Large Cell Isolation Cartridge
P/N 100-258-668

Key Features

- 1. Reproducible and Precise:** When used with the Singulator Platform, the Heart Cell Isolation Bundle delivers consistent results across different users and days. The bundle isolates cells with minimal bias, which is critical for the accuracy and integrity of single-cell genomics applications.
- 2. Automated:** Streamlines the workflow, reducing manual steps, saving time and minimizing opportunities for mistakes.
- 3. Compatible:** Seamlessly integrates with downstream single-cell genomics applications.
- 4. Versatile:** The Heart Cell Isolation Bundle ensures minimal cell loss, enabling the recovery of a diverse range of cell types from heart tissues, regardless of their size.

Usage

- 1. Prepare Reagent:** Reconstitute lyophilized Heart Reagent with 20 mL of appropriate media.
- 2. Prepare Single Shot Mechanism:** Aliquot 3 mL of reconstituted Heart Reagent in a 15 mL conical tube and place into the “Enzyme” slot of the Single Shot Mechanism. Aliquot 6 mL of appropriate media in a 15 mL conical tube and place it into the “Buffer” slot of the Single Shot Mechanism.
- 3. Select Protocol:** Select the Heart Cell Isolation protocol on the Singulator Platform and pre-heat the Singulator.
- 4. Prepare Sample and Load Cartridge:** Place the whole or pre-minced tissue sample into the cartridge. Place the cartridge into the Singulator.
- 5. Isolate Cells:** Initiate the selected protocol on the Singulator.
- 6. Obtain Cells:** When the run completes, immediately retrieve the isolated cells from the cartridge and proceed with downstream processing.

Performance

Heart cells were isolated from mouse heart tissue using the Heart Cell Isolation Bundle, following the 'Demonstrated Protocol – Cell Isolation from Heart Tissue for Single Cell Sequencing Applications' (100-318-864). The process yielded approximately 10,000 cells per milligram of tissue, with 77% viability. The isolated cells showed minimal cellular aggregates and dead cells, underscoring the effectiveness of the Heart Cell Isolation Bundle in producing high-quality cell preparations, including cardiomyocytes, that are essential for reliable heart tissue data (**FIGURE 1**).

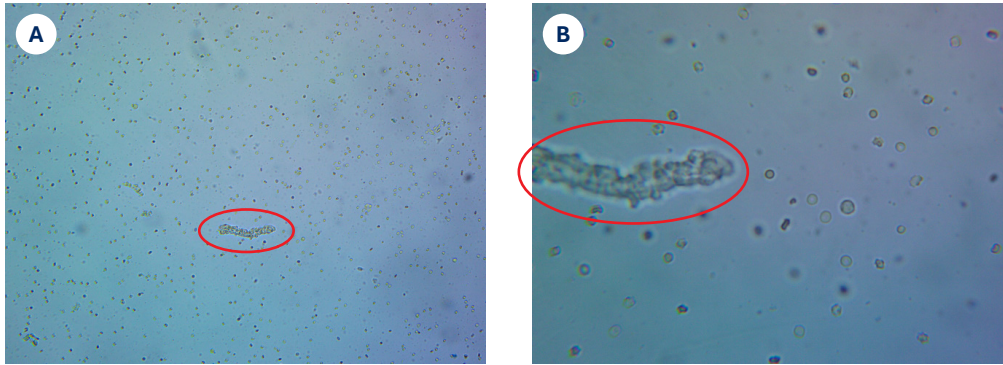


FIGURE 1: Single-cell suspension generated from mouse heart tissue following the Demonstrated Protocol – Cell Isolation from Heart Tissue for Single Cell Sequencing Applications. Heart cells stained with Trypan Blue shown at (A) 10x magnification and (B) 40 x magnification using the Heart Cell Isolation Bundles. Cardiomyocyte is circled in red in both images.

scRNA-Seq was performed on mouse heart cells isolated using the Singulator Platform and the Heart Cell Isolation Bundle. A total of 10,264 heart cells were analyzed with an average sequencing depth of 68,365 reads per cell. On average, 1,643 genes and 3,822 transcripts were detected per cell. Independent clustering and manual annotation identified the expected cell types, including endothelial cells, fibroblasts, macrophages/DCs, pericytes, smooth muscle cells, endocardial cells, T-cells, cardiomyocytes, B-cells, lymphatic endothelial cells, erythrocytes, epithelial cells, and neuronal cells (**FIGURE 2**). The ability to isolate and detect such a broad range of cell types, including delicate ones like cardiomyocytes and endocardial cells, underscores the value of the Heart Cell Isolation Bundle in advancing cardiovascular and cellular research.

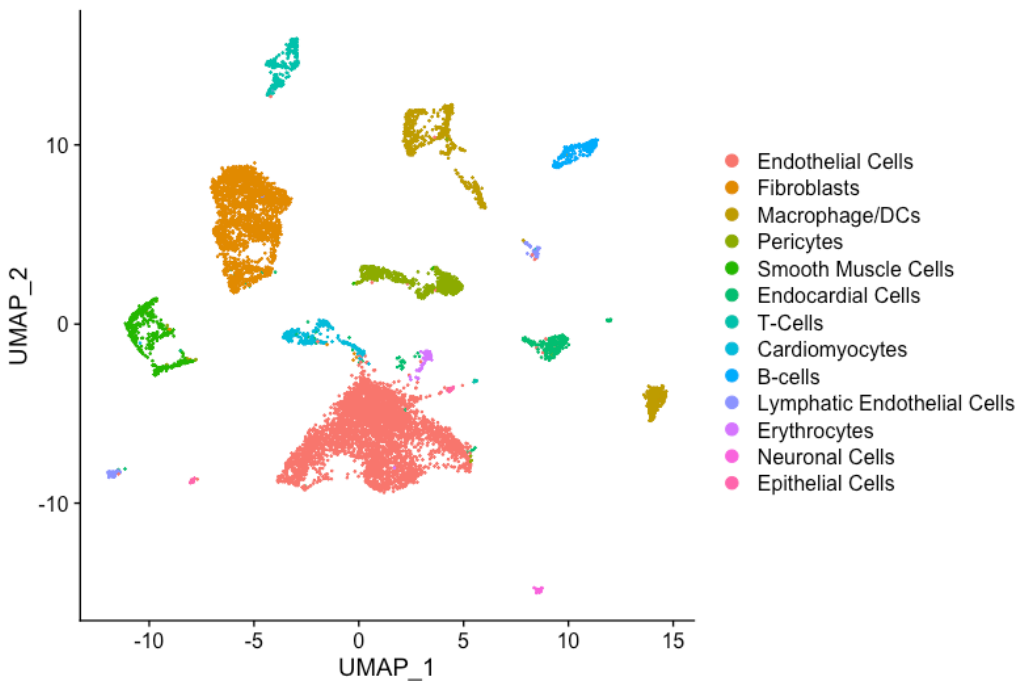


FIGURE 2: The Heart Cell Bundle effectively isolates expected cell populations from mouse heart tissue. UMAP projection of RNA-Seq data from heart cells of a 6-week-old CD-1 mouse, isolated using the Singulator Platform and Heart Cell Bundle, and processed with the Parse Evercode WTV2 assay. The recovered cells display the expected types and distribution characteristic of mouse heart tissue.

Bundle: 100-289-370 Heart Cell Isolation Bundle (24 samples)



Large Cell Isolation Cartridge
100-258-668

(Quantity 24)



Heart Reagent, 20mL
100-253-846

(Quantity 4)

Specifications

Tissue Input: 20-300 mg
Compatible Preservation Methods: Fresh tissue

Storage

Large Cell Isolation Cartridge: Room Temperature
Heart Reagent: Provided in lyophilized form and stored at 4°C. Once reconstituted, it remains stable for up to one week at 4°C or for up to six months when stored at -20°C.

ORDERING INFORMATION:

Part Number	Description	Quantity
100-289-370	Heart Cell Isolation Bundle (24 samples)	
100-258-688	Large Cell Isolation Cartridge	24
100-253-846	Heart Reagent, 20 mL	4

Contact Us

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