

STEMdiff™ Cardiomyocyte Dissociation Kit

For dissociation of hPSC-derived cardiomyocytes



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Catalog #05025

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Product Description

STEMdiff™ Cardiomyocyte Dissociation Kit includes STEMdiff™ Cardiomyocyte Dissociation Medium and STEMdiff™ Cardiomyocyte Support Medium. STEMdiff™ Cardiomyocyte Dissociation Medium can be used to harvest cardiomyocytes that have been differentiated from human pluripotent stem cells (hPSCs) using STEMdiff™ Ventricular Cardiomyocyte Differentiation Kit (Catalog #05010) or STEMdiff™ Atrial Cardiomyocyte Kit (Catalog #100-0215) and maintained in STEMdiff™ Cardiomyocyte Maintenance Medium (Catalog #05010/05020). STEMdiff™ Cardiomyocyte Support Medium reduces stress on these cardiomyocytes during harvesting and replating, maintaining their viability and functional capacity for downstream applications and analyses.

Product Information

The following components are sold as a complete kit (Catalog #05025). STEMdiff™ Cardiomyocyte Support Medium (Catalog #05027) is also available for individual sale.

COMPONENT NAME	COMPONENT #	SIZE	STORAGE	SHELF LIFE
STEMdiff™ Cardiomyocyte Dissociation Medium	05026	50 mL	Store at -20°C.	Stable for 12 months from date of manufacture (MFG) on label.
STEMdiff™ Cardiomyocyte Support Medium	05027	250 mL	Store at -20°C.	Stable for 12 months from date of manufacture (MFG) on label.

Preparation of Media

Thaw STEMdiff™ Cardiomyocyte Dissociation Medium and Support Medium at room temperature (15 - 25°C) or overnight at 2 - 8°C. Mix thoroughly.

- STEMdiff™ Cardiomyocyte Dissociation Medium: Warm to 37°C before use.
- STEMdiff™ Cardiomyocyte Support Medium: Warm to room temperature before use.

NOTE: If not used immediately, store at 2 - 8°C for up to 1 month. Alternatively, aliquot and store at -20°C. Do not exceed the shelf life of the medium. Once aliquots are thawed, use immediately. Do not re-freeze.

Directions for Use

Please read the entire protocol before proceeding. Use sterile technique when performing the following protocols.

A. DISSOCIATING hPSC-DERIVED CARDIOMYOCYTES

The following instructions are for dissociation of hPSC-derived cardiomyocytes that have been maintained in STEMdiff™ Cardiomyocyte Maintenance Medium in 1 well of a 12-well plate. Dissociation can be performed as early as Day 15 of differentiation/maintenance.

1. Wash each well to be harvested with 2 x 1 mL of D-PBS (Without Ca⁺⁺ and Mg⁺⁺; Catalog #37350).
2. Gently remove the wash and add 1 mL/well of warm (37°C) Cardiomyocyte Dissociation Medium.
3. Incubate at 37°C and 5% CO₂ for 10 - 12 minutes.
4. Add 2 mL of Cardiomyocyte Support Medium per well. Dislodge cells by pipetting up and down 3 - 5 times using a 10 mL serological pipette (e.g. Catalog #38004).

Critical: Do not use a smaller-bore pipette tip at this step, as this may result in significant cell death.

5. Immediately transfer cells from one well to a tube containing 3 mL of Cardiomyocyte Support Medium.
6. Centrifuge at 300 x g for 5 minutes. Remove and discard supernatant.
7. Gently resuspend cell pellet with 1 - 2 mL Cardiomyocyte Support Medium.

8. Perform a cell count using Trypan Blue (Catalog #07050) and a hemocytometer.
9. Single-cell hPSC-derived cardiomyocytes are now ready for replating (proceed to section B) or standard assays.

B. REPLATING hPSC-DERIVED CARDIOMYOCYTES

1. Coat a 12-well tissue culture plate with Corning® Matrigel® hESC-Qualified Matrix (Corning Catalog #354277) and bring to room temperature (15 - 25°C) for at least 1 hour prior to use.
NOTE: For coating plates with Matrigel®, refer to the Technical Manual for mTeSR™1, mTeSR™ Plus, or TeSR™-E8™, available at www.stemcell.com or contact us to request a copy.
2. Aspirate Matrigel® from the coated 12-well tissue culture plate (prepared in step 1). Add 2 mL of STEMdiff™ Cardiomyocyte Support Medium per well.
3. Add cells at a density appropriate for downstream assays or other applications. Incubate at 37°C for 24 hours.
4. Remove medium and add 2 mL of STEMdiff™ Cardiomyocyte Maintenance Medium per well. Incubate at 37°C.
NOTE: For storage, stability, and preparation instructions for STEMdiff™ Cardiomyocyte Maintenance Medium, refer to the corresponding Product Information Sheet (Document #10000009775), available at www.stemcell.com or contact us to request a copy.
5. Every 2 days, perform a full-medium change with 2 mL of STEMdiff™ Cardiomyocyte Maintenance Medium per well.

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