

# STEMdiff™ Cardiomyocyte Dissociation Kit

For dissociation of hPSC-derived cardiomyocytes



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Catalog #05025

1 Kit

## 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™ Cardiomyocyte Differentiation Kit (Catalog #05010) 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 (15 - 25°C) 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 techniques 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<sup>++</sup> and Mg<sup>++</sup>; 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% CO<sub>2</sub> 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: Maintenance of Human Pluripotent Stem Cells in mTeSR™1 (Document #28315) or TeSR™-E8™ (Document #29267) available at [www.stemcell.com](http://www.stemcell.com) or contact us to request a copy.

2. Aspirate Matrigel® from the pre-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 #DX21496), available at [www.stemcell.com](http://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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