

STEMdiff™ Cardiomyocyte Dissociation Kit

For dissociation of hPSC-derived cardiomyocytes



Scientists Helping Scientists™ | WWW.STEMCELL.COM

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

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™ Ventricular Cardiomyocyte Differentiation Kit (Catalog #05010) or STEMdiff™ Atrial Cardiomyocyte Differentiation Kit (Catalog #100-0215) and maintained in STEMdiff™ Cardiomyocyte Maintenance Kit (Catalog #05020).

NOTE: To reduce stress on hPSC-derived cardiomyocytes during harvesting and replating, the use of STEMdiff™ Cardiomyocyte Plating Supplement (Catalog #100-1120) in combination with STEMdiff™ Cardiomyocyte Support Medium is recommended. The addition of the STEMdiff™ Cardiomyocyte Plating Supplement increases the viability and plating efficiency of hPSC-derived cardiomyocytes.

Product Information

STEMdiff™ Cardiomyocyte Dissociation Medium and STEMdiff™ Cardiomyocyte Support Medium are sold as a complete kit (Catalog #05025). STEMdiff™ Cardiomyocyte Support Medium (Catalog #05027) and STEMdiff™ Cardiomyocyte Plating Supplement (Catalog #100-1120) are also available for individual sale.

COMPONENT NAME	COMPONENT #	SIZE	STORAGE	SHELF LIFE
STEMdiff™ Cardiomyocyte Dissociation Kit (Catalog #05025)				
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.
STEMdiff™ Cardiomyocyte Plating Supplement	100-1120	2.5 mL	Store at -20°C.	Stable for 2 years from date of manufacture (MFG) on label.

Preparation of Media

A. STEMdiff™ CARDIOMYOCYTE DISSOCIATION MEDIUM

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

NOTE: If not using immediately, store STEMdiff™ Cardiomyocyte Dissociation Medium 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.

B. STEMdiff™ CARDIOMYOCYTE PLATING MEDIUM

Use sterile technique to prepare complete STEMdiff™ Cardiomyocyte Plating Medium (STEMdiff™ Cardiomyocyte Support Medium + STEMdiff™ Cardiomyocyte Plating Supplement [100X]). The following example is for preparing 250 mL of complete medium. If preparing other volumes, adjust accordingly.

1. Thaw STEMdiff™ Cardiomyocyte Support Medium at room temperature or overnight at 2 - 8°C. Mix thoroughly.

NOTE: If not using immediately, store STEMdiff™ Cardiomyocyte Support Medium 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.

2. Thaw STEMdiff™ Cardiomyocyte Plating Supplement (100X) at room temperature. Mix thoroughly.

NOTE: Once thawed, use immediately or aliquot and store at -20°C. Do not exceed the shelf life of the supplement. After thawing aliquots, use immediately. Do not re-freeze.

3. Add 2.5 mL of STEMdiff™ Cardiomyocyte Plating Supplement (100X) to 247.5 mL of STEMdiff™ Cardiomyocyte Support Medium. Mix thoroughly.

NOTE: If not using immediately, store complete STEMdiff™ Cardiomyocyte Plating Medium at 2 - 8°C for up to 2 weeks. Warm medium to room temperature before use.

C. STEMdiff™ CARDIOMYOCYTE MAINTENANCE MEDIUM

For storage, stability, and preparation instructions for STEMdiff™ Cardiomyocyte Maintenance Medium, refer to the applicable Product Information Sheet (PIS; Document #10000009775).

Directions for Use

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

A. DISSOCIATING hPSC-DERIVED CARDIOMYOCYTES

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) STEMdiff™ Cardiomyocyte Dissociation Medium.
3. Incubate at 37°C and 5% CO₂ for 10 - 12 minutes.
4. Add 2 mL of STEMdiff™ Cardiomyocyte Plating Medium (see Preparation of Media, section B) per well. Dislodge cells by pipetting up and down 3 - 5 times using a 10 mL serological pipette.

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 STEMdiff™ Cardiomyocyte Plating Medium.
6. Centrifuge at 300 x g for 5 minutes. Remove and discard the supernatant.
7. Gently resuspend cell pellet with 1 - 2 mL STEMdiff™ Cardiomyocyte Plating Medium.
8. Perform a cell count using an automated cell counter (e.g. NucleoCounter® NC-250™) or with Trypan Blue and a Hausser Scientific™ Bright-Line Hemocytometer (Catalog #100-1181).
9. Single-cell hPSC-derived cardiomyocytes are now ready for standard assays or replating. For more information, refer to the PIS for STEMdiff™ Cardiomyocyte Support Medium (Document #1000000170).

B. [OPTIONAL] REPLATING hPSC-DERIVED CARDIOMYOCYTES

The following instructions are for replating thawed or dissociated hPSC-derived cardiomyocytes onto a 12-well plate. For other cultureware, adjust volumes accordingly.

NOTE: For more information on thawing hPSC-derived cardiomyocytes, refer to the applicable PIS (Document #1000000171).

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. Warm STEMdiff™ Cardiomyocyte Plating Medium (see Preparation of Media) to room temperature.
3. Aspirate Matrigel® from the coated 12-well tissue-culture plate (prepared in step 1). Add 1 mL of STEMdiff™ Cardiomyocyte Plating Medium per well.
4. Add cells at a density appropriate for downstream assays or other applications. Incubate at 37°C for 24 hours.
5. Remove medium and add 2 mL of STEMdiff™ Cardiomyocyte Maintenance Medium per well. Incubate at 37°C.
6. The following day, warm STEMdiff™ Cardiomyocyte Maintenance Medium to room temperature.
7. Remove medium and add 2 mL of STEMdiff™ Cardiomyocyte Maintenance Medium per well. Incubate at 37°C and 5% CO₂.
8. Every 2 days, perform a full-medium change with 2 mL of STEMdiff™ Cardiomyocyte Maintenance Medium per well.

PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED. FOR ADDITIONAL INFORMATION ON QUALITY AT STEMCELL, REFER TO WWW.STEMCELL.COM/COMPLIANCE.

Copyright © 2025 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, Scientists Helping Scientists, and STEMdiff are trademarks of STEMCELL Technologies Canada Inc. mTeSR, TeSR, and E8 are trademarks of WARF. Corning and Matrigel are registered trademarks of Corning Incorporated. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.