



Cardiomyocyte Selective Medium-basal (CSM-b)

Catalog Number: 5911-b

Product Description

Cardiomyocyte Selective Medium-basal is the basal medium for Cardiomyocyte Selective medium. The complete selective medium is designed for the purification of cardiomyocyte cells derived from human pluripotent stem cell (hPSC). Current protocols allow for the differentiation of hPSC to cardiomyocytes at a high efficiency, however, the derived cells are a mixed population containing non-cardiomyocyte cells. These non-cardiomyocyte cells may interfere with downstream analyses. Density-gradient centrifugation, genetic modification, and cell sorting based on cell surface markers or mitochondria dye have been applied to enrich for the hPSC-derived cardiomyocytes. However, these methods either involve complicated procedures or require special equipment, and are not ideal for therapeutic purposes. Based on the unique metabolic properties of cardiomyocytes, Cardiomyocyte Selective Medium is developed to enrich for the hPSC-derived cardiomyocytes using an efficient, easy, and noninvasive approach.

Cardiomyocyte Selective Medium-basal is a serum-free medium specially designed for the selective growth of human cardiomyocytes. In conjunction with the Cardiomyocyte Selective Growth Supplement (CSGS, Cat. #5962), it significantly improves the purity of hPSC-derived cardiomyocyte cell population in 4 - 6 days, requiring only daily medium change. While culturing in the Cardiomyocyte Selective Medium, the non-cardiomyocyte cells gradually die, whereas the cardiomyocytes remain contracting in the culture.

Components

Cardiomyocyte Selective Medium-basal consists of 500 mL basal medium (CSM-b).

Product Use

Cardiomyocyte Selective Medium-basal is for research use only. It is not approved for human or animal use, or for application in *in vitro* diagnostic procedures.

Storage

Store the basal medium at 4°C.

Shipping

Dry ice.

Prepare Cardiomyocyte Selective Medium

1. Warm the basal medium and 50X CSGS to room temperature. Make sure the 50X CSGS is completely dissolved before adding it to the basal medium.
2. Decontaminate the external surfaces of the medium bottle and medium supplement tube with 70% ethanol and transfer them to a sterile field.
3. Add the 50X CSGS into the basal medium using sterile techniques and mix well. The reconstituted medium is now ready for use.

NOTE: Store the complete medium in the dark at 4°C, protecting from light. We recommend warming the medium at room temperature prior to use.

Instructions for use

Before applying Cardiomyocyte Selective Medium to your differentiated cardiomyocytes for selective culturing, we recommend letting the cells grow to 70-80% confluency. If the cell density is too high, we suggest splitting the cells; if too low, allow the cells to grow until they reach 70-80% confluency.

Day 1: Warm the complete medium to room temperature. Remove the culture medium from cells and wash them once with the complete medium. Apply the selective medium to the cells (2 ml of medium per well of a 6-well plate).

Day 2 to Day 6: Change the medium daily. Cell death is expected, however cardiomyocytes will remain contracting in the selective medium.

Day 7: Most non-cardiomyocyte cells should die by this time. Change to cardiomyocyte culture medium, e.g. ScienCell Cardiac Muscle Medium (Cat. #6201), or other cardiomyocyte culture medium of your choice.

NOTE: We recommend applying the selective medium for 4 - 6 days to enrich for the cardiomyocytes. If a high number of non-cardiomyocyte cells still remain in the culture after 6 days, you may continue treatment for 2 additional days. DO NOT culture the cells in the selective medium beyond 10 days; this may lead to cell death of the cardiomyocytes.

Caution: If handled improperly, some components of the medium may present a health hazard. Take appropriate precautions when handling it, including the wearing of protective clothing and eyewear. Dispose of properly.

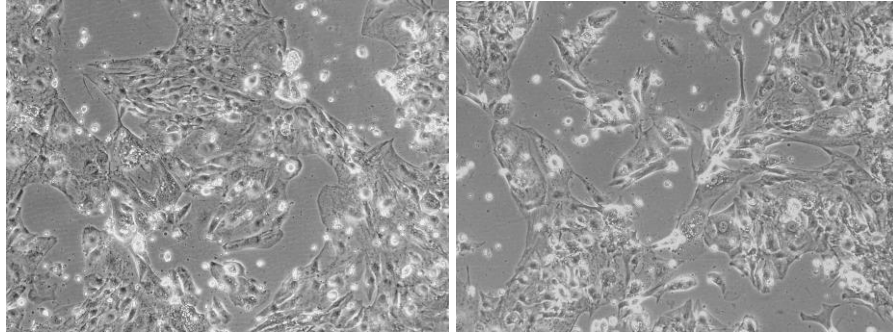


Figure 1. hPSC-derived cardiomyocytes were cultured in Selective Medium for 6 days. Most non-cardiomyocyte cells died, while cardiomyocytes survived and spontaneously contracted.

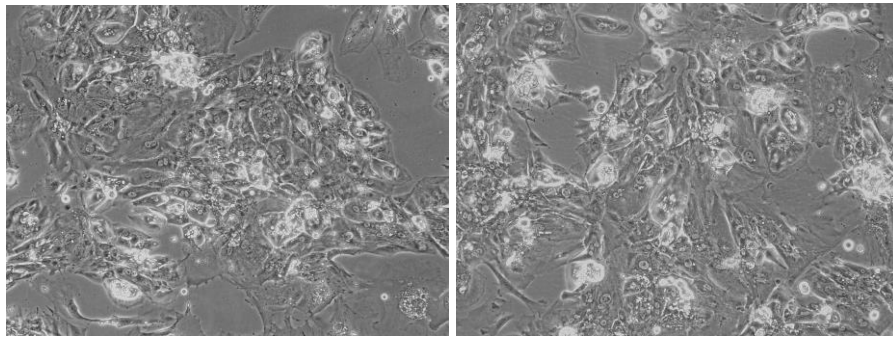


Figure 2. hPSC-derived cardiomyocytes were cultured in Selective Medium for 6 days, and then maintained in Cardiac Muscle Medium (Cat. #6201).

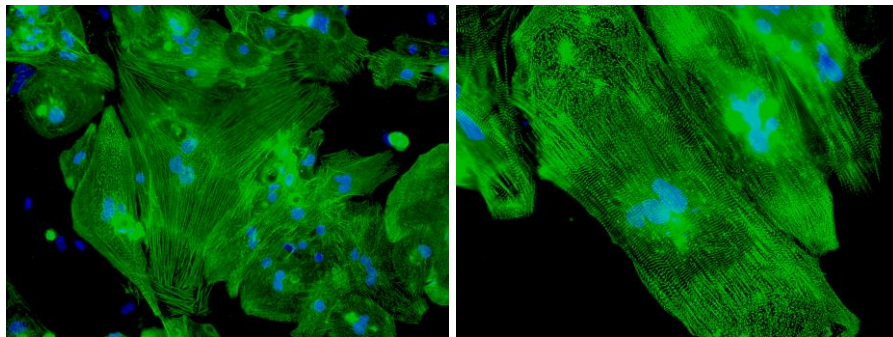


Figure 3. hPSC-derived cardiomyocytes express sarcomeric alpha-Actinin after culturing in Selective Medium for 6 days, and then in Cardiac Muscle Medium. Cardiomyocytes were fixed and immunostained for sarcomeric alpha-Actinin (green). Nuclei were stained with DAPI (blue). Left: 200x; right: 400x