cyagen | OriCell

User Manual

OriCell™ SD Rat Myocardial Cells

Catalog No. RASMY-02081

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Introduction

OriCell™ SD Rat Myocardial Cells are isolated from rat heart tissue via synergistic digestion with trypsin and collagenase, followed by purification using the differential adhesion method. Once cultured in vitro, these cardiomyocytes retain key structural and functional properties while exhibiting characteristic spontaneous rhythmic contractions. This model offers distinct advantages, including experimental simplicity, quantifiability, high reproducibility, and free from neural and humoral interferences.

Owing to such unique characteristics, these cells are widely used to study the regulation of cardiac hypertrophy induced by non-hemodynamic factors, as well as biomechanics, apoptosis, receptor downregulation, ischemic preconditioning, and signaling pathways. In addition, they serve as valuable models for screening and evaluating the safety of new cardiac drugs, and for isolating key bioactive factors. Together, these applications are crucial for understanding cardiomyocyte physiological functions, drug responses, and pathological changes under various disease conditions.

Note: **This product is intended for research use only and is not for diagnostic, therapeutic, clinical, household, or any other applications.**

When citing our products in academic publications, please use the following format: "OriCell™ [Product Name] + [Catalog Number], from Cyagen Biosciences."

Product Information

Product Name	OriCell™ SD Rat Myocardial Cells
Catalog Number	RASMY-02081
Cell Characteristics	Adherent growth; Spindle-shaped
Passage Capability	Terminally differentiated; Non-proliferating; Spontaneous rhythmic beating
Identification Markers	α-actin
Number of Cells	1×10^6 cells/vial
Passage Number	P1
Storage at	Liquid Nitrogen (-196°C)

The Morphology of OriCell™ SD Rat Myocardial Cells

QC

- Pass the detection of bacteria, fungi, mycoplasma, and endotoxins.
- Verified by cell recovery viability testing, with a post-thaw survival rate >80%.
- Cell identification: Positive for α-actin expression (>90%) as confirmed by immunofluorescence (IF) staining.

Please refer to "COA" for details.

General Handing Principles

1. Maintain strict aseptic technique. Ensure complete sterility throughout all procedures, particularly within the laminar flow hood and incubator.
2. Follow standardized protocols. Adhere strictly to the product manual. Implement rigorous control over experimental variables and include appropriate parallel controls.
3. Use high-quality consumables and reagents. This product requires culture vessels suitable for adherent cell growth, and the reuse of these vessels is not recommended. The reagents used must be validated for reliability, cell compatibility, and batch-to-batch consistency.
4. Optimize seeding density and subculture. The recommended seeding density for OriCell™ SD Rat Myocardial Cells is (2.5–4) × 10^4 viable cells/cm^2. Since cell growth is highly dependent on donor characteristics and culture conditions, we recommend adjusting the split ratios based on the actual performance of each specific lot and passage.

Note: **The cryopreservation medium of this product contains DMSO, which may pose potential risks. Please handle it with care.**

Thawing and Culturing of Cells

Materials Required

- OriCell™ SD Rat Myocardial Cells (Cat. No.: RASMY-02081)
- OriCell™ Complete Medium For Rat Myocardial Cells (Cat. No.: RASMY-90011)

Steps

Note: **If thawing is planned within 24 hours of receipt, store the cells in an ultra-low temperature freezer at -80 °C. For long-term storage (>24 hours) , keep them in liquid nitrogen. Before thawing,**

transfer the cells from liquid nitrogen to -80 °C and hold them there for 10 minutes. This will allow any residual liquid nitrogen to evaporate and prevent vial explosion.

1. Pre-warm the water bath to 37 °C.
2. Warm the complete medium to 37 °C.
3. Add at least 5 mL of pre-warmed complete medium to a 15 mL centrifuge tube for subsequent use.
4. Remove the cryovial containing cells from the −80 °C freezer, immerse it in the 37 °C water bath, and gently and quickly swirl to thaw the cryopreservation medium.

   Note:

   (1) Gently swirl the cryovial during thawing to ensure rapid and uniform thawing.

   (2) Avoid submerging the cap in water to prevent contamination.

   (3) Stop thawing in the water bath when only a single ice crystal (approximately 2 mm in diameter) remains, then continue gently swirling the vial until it is completely thawed.

5. Wipe the outer surface of the cryovial with 75% ethanol.
6. In a biosafety cabinet, open the cryovial and transfer the cell suspension to the prepared centrifuge tube using a Pasteur pipette.
7. Rinse the cryovial once with 1 mL of complete medium to collect residual cells and minimize loss.
8. Centrifuge the cell suspension at 250 × g for 4 minutes.

   Note: **Please calculate the corresponding rotational speed using the formula: $RCF = 1.118 \times 10^{-5} \times r \times RPM^2$ (where RCF is the relative centrifugal force, r is the rotor radius in cm, and RPM is the rotational speed).**

9. Carefully remove the supernatant after centrifugation. Add 2 mL of complete medium, gently resuspend the cell pellet by pipetting up and down to mix thoroughly.

10. Seed the cells into a T25 flask or culture vessel with an equivalent growth surface area. Add sufficient complete medium so that the total volume in a T25 flask is no less than 5 mL.
11. Gently swirl the flask to evenly distribute the cells, then incubate in a CO_2 incubator at 37 °C with 5% CO_2 and saturated humidity.

    Note: **Do not move or observe the cells within the first 2 hours after seeding, as this may impair cell adhesion, causing poor morphology, clumping, and uneven attachment.**

12. On the day after recovery, observe cell status and either replace the medium with fresh complete medium or passage the cells as needed.

    Note: **If an excessive number of floating cells or any abnormal conditions are observed, investigate promptly and contact us for assistance.**

13. Replace the complete medium every 2 days until the cells reach a stable growth phase, at which point they are ready for downstream experiments.

    Note: **Do not store the cells at -80 °C for more than 48 hours.**