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Product Information

Mouse Cardiac Fibroblasts (MCF)

Catalog Number	10MU-015	**Cell Number**	0.5 million cells/vial
Species	*Mus musculus*	**Storage Temperature**	Liquid Nitrogen

Description

The cardiac fibroblasts (CF) are the principal cell type of the heart. They provide structural support for cardiac myocytes, are a source of paracrine growth factors, and are an important cellular component of myocardial responses to injury. CF are responsible for extracellular matrix synthesis in the heart during development and pathological conditions. Their proliferation and matrix synthesis is essential for scar formation at sites of myocardial infarction [1], cardiac fibrosis, and is often complicated by cardiac hypertrophy [2]. CF also respond to changes in microenvironments in pathological conditions by modulating integrin expression [3]. CF culture has been widely used as a model to study the cardiac matrix remodeling by physiological (exercise) and pathological (hypertension) stressors.

iXCells Biotechnologies provides high quality Mouse cardiac fibroblasts (MCF), which are isolated from postnatal day 2 mouse heart and cryopreserved at P0, with >0.5 million cells in each vial. MCF express fibronectin and are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. They can further expand for 5 population doublings in Fibroblast Growth Medium (Cat# MD-0011) under the condition suggested by iXCells Biotechnologies.

Product Details

Tissue	Day 2 mouse heart (strain C57BL/6 or CD1)
Package Size	0.5 x 10^6 cells/vial
Passage Number	P0
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Fibroblast Growth Medium (Cat# MD-0011)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Mouse cardiac fibroblasts (MCF), it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
2. To thaw the cells, put the vial in 37°C water bath with gentle agitation for ~1 minute. Keep the cap out of water to minimize the risk of contamination.
3. Pipette the cells into a 15 ml conical tube with 5ml fresh Fibroblast Growth Medium (Cat# MD-0011).
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Fibroblast Growth Medium.
6. Culture the cell in T75 flask. Change medium every other day until the cells reach 80-90% confluence.

Safety Precaution: *it is highly recommended that protective gloves and clothing should be used when handling frozen vials.*

Standard Culture Procedure

1. Mouse cardiac fibroblasts (MCF) can be cultured in Fibroblast Growth Medium (Cat# MD-0011).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 ml / T75 flask).
3. Add ~2.5 ml of 0.25% Trypsin-EDTA to the flask and incubate for ~3 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell culture medium.
4. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
5. Seed the cells in the new culture vessels at 5×10^3 cells/cm^2. Change medium every other day until the cells reach 80-90% confluence.

References

[1] Sabri A, Short J, Guo J, Steinberg SF. (2002) “Protease-activated receptor-1-mediated DNA synthesis in cardiac fibroblast is via epidermal growth factor receptor transactivation: distinct PAR-1 signaling pathways in cardiac fibroblasts and cardiomyocytes.” Circ Res. 91: 532-9.

[2] Akiyama-Uchida Y, Ashizawa N, Ohtsuru A, Seto S, Tsukazaki T, Kikuchi H, Yamashita S, Yano K. (2002) “Norepinephrine enhances fibrosis mediated by TGF-beta in cardiac fibroblasts.” Hypertension. 40: 148-54.

[3] Burgess ML, Terracio L, Hirozane T, Borg TK. (2002) “Differential integrin expression by cardiac fibroblasts from hypertensive and exercise-trained rat hearts.” Cardiovasc Pathol. 11: 78-87

Disclaimers