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Product Information

Human Skeletal Muscle Satellite Cells (HSkMSC)

Catalog Number	10HU-177	Cell Number	0.5 million cells/vial
Species	*Homo sapiens*	Storage Temperature	Liquid nitrogen

Description

Skeletal muscle contains both differentiated myofibers and stem cells, known as satellite cells. The satellite cells, comprising around 1% of the total muscle nuclei, are situated between the plasma membrane of the multinucleated muscle cells and the basal lamina that surrounds each myofiber. In adult muscle, satellite cells are quiescent but proliferate in response to muscle injury, producing myoblasts that can either form new satellite cells or fuse with one another or pre-existing multinucleated muscle cells to help repair the muscle. They are responsible for postnatal muscle growth, hypertrophy and regeneration of skeletal muscle [1]. When quiescent satellite cells are activated, they co-express the transcription factors Pax7 and myoD [2].

Human Skeletal Muscle Satellite Cells (HSkMSC) from iXCells Biotechnologies are isolated from human muscle of the pectoral girdle. HSkMSC are cryopreserved at passage one and delivered frozen. Each vial contains >5 x 10^5 cells in 1 ml volume. HSkMSC are characterized by immunofluorescence with antibodies specific to myosin, actin and actinin. HSkMSC are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast and fungi. HSkMSC are guaranteed to further expand for 12 population doublings in Skeletal Muscle Cell Growth Medium (Cat# MD-0052).

Product Details

Tissue	Human muscle of the pectoral girdle
Package Size	0.5 million cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Skeletal Muscle Cell Growth Medium (Cat# MD-0052)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Human Skeletal Muscle Satellite Cells (HSkMSC), 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 15ml conical tube with 5ml fresh Skeletal Muscle Cell Growth Medium (Cat# MD-0052).
4. Centrifuge at 1,000rpm (~220g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in Skeletal Muscle Cell Growth Medium (Cat# MD-0052).
6. Culture the cells in a T75 flask.

Note: culture dishes or flasks should be pre-coated with 0.01% poly-l-lysine or rat collagen I >1 hours at 37oC before use.

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

Standard Culture Procedure

1. Human Skeletal Muscle Satellite Cells (HSkMSC) can be cultured in Skeletal Muscle Cell Growth Medium (Cat# MD-0052).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5ml/T75 flask).
3. Add ~2.5ml of 0.05% Trypsin-EDTA to the flask and incubate for ~3 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of Skeletal Muscle Cell Growth Medium (Cat# MD-0052).
4. Centrifuge 1,000rpm (~220g) for 5min and resuspend the cells in desired volume of medium.
5. Seed new culture vessels at 5×10^3 cells/cm^2.

Note: culture dishes or flasks should be pre-coated with 0.01% poly-l-lysine or rat collagen 1 >1 hours at 37oC before use.

References

[1] Villena, J., Brandan, E. (2004) Dermatan sulfate exerts an enhanced growth factor response on skeletal muscle satellite cell proliferation and migration. J Cell Physiol. 198(2):169-78.

[2] Morris, R. T., Spangenburg, E. E., Booth, F. W. (2004) Responsiveness of cell signaling pathways during the failed 15-day regrowth of aged skeletal muscle. J Appl Physiol. 96(1):398-404.

[3] Al-Khalili, L., Chibalin, A. V., Kannisto, K., Zhang, B. B., Permert, J., Holman, G. D., Ehrenborg, E., Ding, V. D., Zierath, J. R., Krook, A. (2004) Insulin action in cultured human skeletal muscle cells during differentiation: assessment of cell surface GLUT4 and GLUT1 content. Cell Mol Life Sci. 60(5):991-8.

Disclaimers

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