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Product Information

Mouse Preadipocytes (Inguinal White Fat Tissue)

Catalog Number	10MU-106	Cell Number	$0.5x10^6$ cells/vial
Species	*Mus Musculus*	Storage Temperature	Liquid nitrogen

Product Description

Adipose tissue is critically involved in energy storage and metabolic homeostasis of the body. Adipocyte dysfunction is involved in the pathogenesis of obesity-related insulin resistance. Adipocytes are also immunologically active and they play a role in innate immunity as well as adaptive immunity. Preadipocytes are self-renewing progenitors of mature differentiated adipocytes and can be found in adipose tissue throughout life. Previously, the majority of adipocyte research was conducted in mouse 3T3-L1 preadipocyte lines.

iXCells Biotechnologies provides primary mouse preadipocytes (MPAd) isolated from mouse interscapular white fat tissue, which can be chemically differentiated to adipocytes in vitro (>90% efficiency). MPAd can be used as primary cell models to study adipocyte function and related metabolism and obesity research. These fibroblast-like adipocyte precursor cells can be propagated two passages in Preadipocye Growth Medium (Cat # MD-0004) prior to differentiating into mouse adipocytes (MAd). iXCells provides optimized protocol for adipocyte differentiation. Mature MAd are expected 7~14 days after initiation of differentiation and should remain healthy and responsive for at least 1 week after complete differentiation. MAd are ideal mouse cellular models for drug discovery research in the area of obesity, diabetics and cardiovascular diseases.

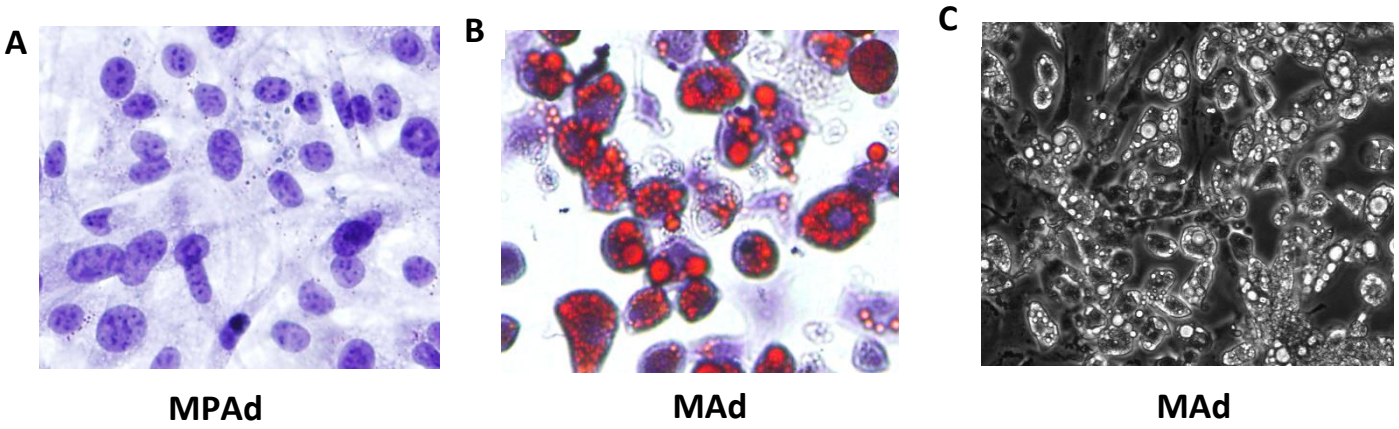

Figure 1. Mouse preadipocytes and differentiated adipocytes. Mouse adipocytes (**B**) were differentiated 10 days from primary mouse preadipocytes (**A**) and cells were stained with hematoxylin and Oil-O-Red, showing lipid droplet formation in differentiated mouse adipocytes. **C** shows phase contrast image of MAd.

Product Details

Tissue	Mouse interscapular white fat
Package Size	$0.5x10^6$ cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Preadipocye Growth Medium (Cat # MD-0004) Adipocyte Differentiation Medium (Cat # MD-0005) Adipocyte Basal Medium (Cat # MD-0001)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen cells, 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 ~1min. Keep the cap out of water to minimize the risk of contamination.
3. Pipette the cells into a 15ml conical tube with ~5ml fresh Preadipocyte Growth Medium (Cat# MD-0004).
4. Centrifuge at 1000rpm (~220g) for 5min under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Preadipocyte Growth Medium
6. Transfer the cells into tissue culture dishes and place them in 37°C incubator (5% CO_2) for continuous culture.

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

Standard Culture Procedure

1. MPAd can be cultured in Preadipocyte Growth Medium (Cat# MD-0004).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5ml/T75 flask).
3. Add ~2.5ml of 0.25% Trypsin-EDTA to the flask and incubate for ~3 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell Adipose-derived Stem Cells Growth Medium.

4. Centrifuge 1000rpm (~220g) for 5min and resuspend the cells in desired volume of medium.

5. Seed new culture vessels at 5 × 10^3 cells/cm^2.

Adipocyte Differentiation Procedure

See this link:
http://www.ixcellsbiotech.com/image/data/Adipose%20Tissue%20Derived%20Cells/Adipocyte%20differentiation%20Protocol.pdf

References

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[2] Yao, Y., M. Suraokar, B.G. Darnay, B.G. Hollier, T.E. Shaiken, T. Asano, C.-H. Chen, B.H.-J. Chang, Y. Lu, and G.B. Mills. *Sci. Signal.* (2013) 6(257): p. ra2. BSTA Promotes mTORC2-Mediated Phosphorylation of Akt1 to Suppress Expression of FoxC2 and Stimulate Adipocyte Differentiation. Science signaling

[3] Zhang, L.J., Guerrero-Juarez, C. F., Hata, T., Bapat S.P., Ramos, R., Plikus, M.V., Gallo, R.L. *Science* (2015) 347(6217):67-71, Dermal adipocytes protect against invasive *Staphylococcus aureus* skin infection

[4] Olivia Osborn & Jerrold M Olefsky. *Nature Medicine* (2012), 18 (3): 363-374, The cellular and signaling networks linking the immune system and metabolism in disease

Disclaimers