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Product Information

Human Preadipocytes / Adipocytes (hPAds)

Catalog Number	10HU-101	Cell Number	0.5 million cells/vial
Species	*Homo sapiens*	Storage Temperature	Liquid Nitrogen

Description

Normal Human Preadipocytes (hPAds) are isolated from normal human lipoaspirate tissue collected during elective surgical liposuction procedures. It has been shown that the hPAds demonstrate very similar phenotypic and functional characteristics to that of bone marrow-derived mesenchymal stem cells. Thousands of articles have been published on hPAds using a variety of terminology, including adipose-derived mesenchymal stem cells (AD-MSCs), adipose MSCs (AMSCs), adipose-derived adult stem (ADAS) cells, and adipose stromal/stem cells (ASCs). Normal human hPAds have been reported to differentiate into many different lineage including chondrogenic, osteogenic, adipogenic and neural. And have been applied in studies include stem cell differentiation, regenerative medicine [1], and cell therapy [2].

iXCells Biotechnologies offers normal human preadipocytes from subcutaneous white fat from single donor. These cells are expanded for one passage in Preadipocyte Growth Medium (Cat # MD-0004) and then cryopreserved at primary passage. iXCells preadipocytes are positive for CD29, CD44, CD73, CD90, CD105, and negative for CD14, CD31, CD45 (Figure 1). These are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi.

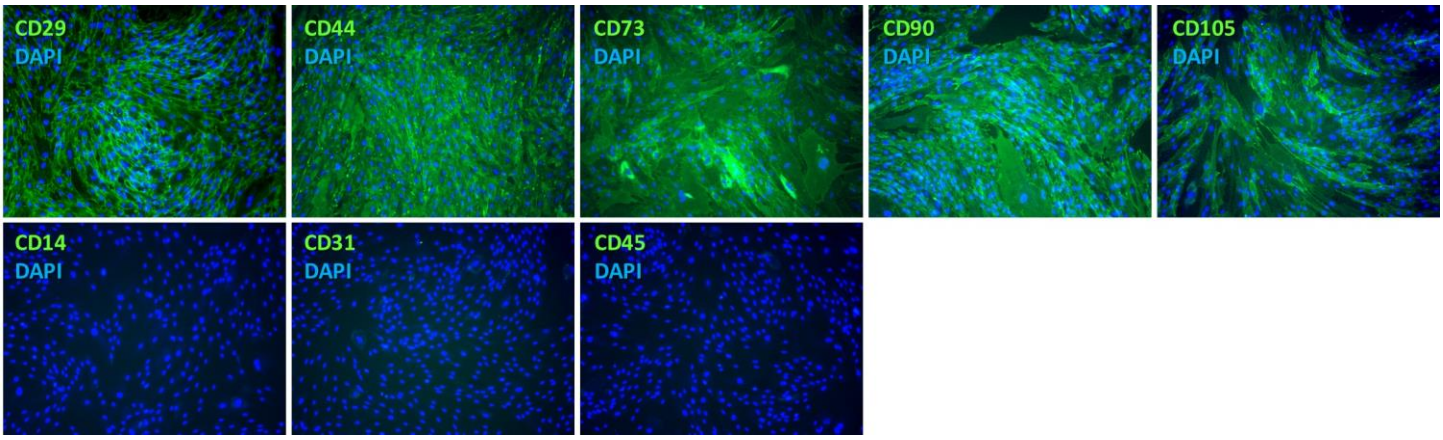

Figure 1. Immunostaining of cell surface markers of human preadipocytes.

Product Details

Tissue	Human subcutaneous white fat
Package Size	0.5 million cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Preadipocyte Growth Medium (Cat # MD-0004) Adipocyte Differentiation Medium (Cat # MD-0005)

Protocols

Standard Culture Procedure

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 ~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 Preadipocyte Growth Medium (Cat # MD-0004).
4. Centrifuge at 1,000rpm (~220g) for 5 minutes under room temperature.
5. Remove the supernatant and re-suspend the cells in fresh Preadipocyte Growth Medium (Cat # MD-0004)..
6. Culture the cell in 1 100 mm dish or 1 T75 flask. Change medium every 3~4 days.
7. When cells reach >85% confluence, freeze them or subculture cells as following
8. Aspirate the culture medium, and wash once with sterile PBS (5ml/T75 flask).
9. Add ~2 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.
10. Centrifuge 1,000rpm (~220g) for 5min and re-suspend the cells in desired volume of medium.
11. Seed new culture vessels at 5 × 10^3 cells/cm^2.

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

Adipocytes Differentiation Protocol

1. Culture cell in Preadipocyte Growth Medium (Cat # MD-0004) until cell reach > 95% confluence.

2. Aspirate the medium, replace with new Preadipocyte Growth Medium (Cat # MD-0004), and let cells grow for 2~3 more days.

3. Aspirate the medium, apply Adipocyte Differentiation Medium (Cat # MD-0005) to the cells. Change adipocytes differentiation medium every 3~4 days for up to 2 weeks. The accumulation of lipid droplets in cytoplasm will appear after 1 week (Figure 2).

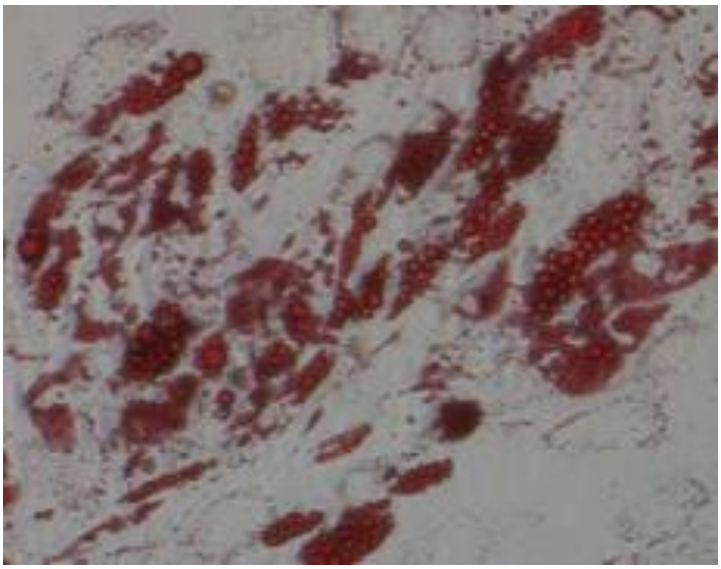

Figure 2. Oil red staining of lipid droplets in differentiated preadipocytes (adipocytes).

References

[1] Harasymiak-Krzyzanowska I et al. Adipose tissue-derived stem cells show considerable promise for regenerative medicine applications. Cell Mol Biol Lett. 2013; 18(4): 479-493.

[2] Bertheuil N, et al and Tarte K. Adipose-derived stromal cells: history, isolation, immunomodulatory properties and clinical perspective. Ann Chir Plast Esthet. 2015;60(2): 94-102.

Disclaimers