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Product Information

Rat Adipose Derived Stem Cells (rADSC)

Catalog Number	10RA-001 (White fat) 10RA-002 (Brown fat)	Cell Number	0.5 x 10^6 cells/vial
Species	*Rattus norvegicus*	Storage Temperature	Liquid Nitrogen

Description

Adipose-derived stem cells are multipotent mesenchymal stem cells (MSCs) that are capable of differentiating into adipocytes, osteocytes, chondrocytes etc *in vitro*. They have been applied in studies such as stem cell differentiation, regenerative medicine [1], cell therapy, tissue engineering and creation of iPS cell lines.

iXCells Biotechnologies provides high quality Rat Adipose Derived Stem Cells (rADSC), which are isolated from inguinal white fat tissue or interscapular brown fat tissue. They are cryopreserved at P1, with >0.5 million cells in each vial and characterized by lipid staining after differentiation. rADSC are negative for mycoplasma, bacteria, yeast, and fungi and can be further expand for 3-4 population doublings in Adipose-derived Stem Cells Growth Medium (Cat # MD-0003) without losing their multipotent properties.

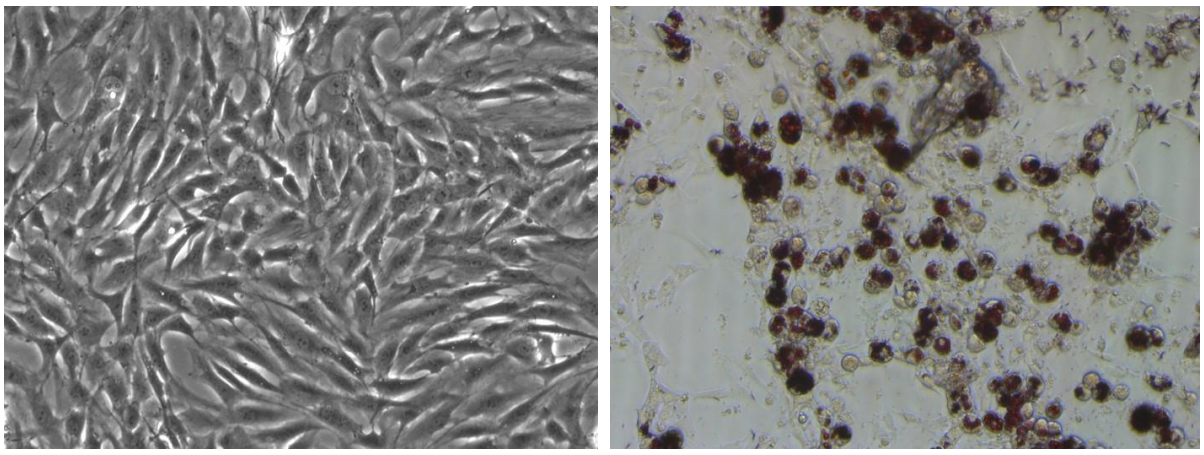

Figure 1. (Left): Rat ADSC (phase contrast). (**Right):** Adipocyte differentiation from Rat ADSC (oil red staining, Day 14).

Product Details

Tissue	Sprague-Dawley rat inguinal white fat or interscapular brown fat tissue
Package Size	$0.5x10^6$ cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Adipose-derived Stem Cells Growth Medium (Cat # MD-0003) Adipocyte Differentiation Medium (Cat# MD-0005)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen rADSC, 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 Adipose-derived Stem Cells Growth Medium (Cat# MD-0003).
4. Centrifuge at 1000rpm (~220g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Adipose-derived Stem Cells Growth Medium.
6. Culture the cell in T75 flask or 100mm dish.

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

Standard Culture Procedure

1. rADSC can be cultured in Adipose-derived Stem Cells Growth Medium (Cat# MD-003).
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 culture 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 Protocol (12 well plate format)

1. Grow rADSC in Adipose-derived Stem Cells Growth Medium (Cat# MD-003) to >95% confluency.
2. Aspirate the growth medium and replace with 1.5 ml fresh growth medium/well, let the cells grow for 2~3 more days.
3. Aspirate the growth medium, apply 1.5 ml Adipocyte Differentiation Medium (Cat# MD-0005) per well to the cells.

   Note: Cells at this stage may detach from dish easily, so do not use pump to aspirate off the medium at this step. Use pipet and slowly remove the medium instead. Add Adipocyte Differentiation Medium very gently to avoid cell detachment.
4. Change fresh Adipocytes Differentiation Medium every 3 days (slowly remove and add the medium as described above).
5. Culture the cells in Adipocytes Differentiation Medium for 10-14 days, and analyze the percentage of cells with oil-droplet formation by Oil Red O Staining (Figure 1).

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.

Disclaimers