India Contact:
Life Technologies (India) Pvt. Ltd.
Mobile: +91-9810521400, Ph: +91-11-42208000
Email: customerservice@lifetechindia.com
Web: www.lifetechindia.com

Rat Adipose Derived Stem Cells (rADSCs)

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

Description

Adipose tissue is a major metabolic organ, and it has been traditionally classified as either white adipose (WAT) or brown adipose tissue (BAT) [1]. 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 [2], cell therapy, tissue engineering and creation of iPS cell lines. Adipose-derived stem cells (ADSCs) are an attractive source of material for mesenchymal stem cell research due to the abundance of adipose and relative ease of access compared with bone marrow [2].

iXCells Biotechnologies provides high quality Rat Adipose Derived Stem Cells (rADSC), which are isolated from inguinal white fat tissue (Cat# 10RA-001) or interscapular brown fat tissue (Cat# 10RA-002). The cells were cryopreserved at P1, with ≥0.5 million cells in each vial. The characterization was performed by CD29 staining (Figure 1) and lipid staining after differentiation (Figure 2). rADSC are negative for mycoplasma, bacteria, yeast, and fungi and can be cultured no more than 3 passages using Adipose-derived Stem Cells Growth Medium (Cat# MD-0003) under the condition suggested by iXCells Biotechnologies. *In vitro*, rADSCs can be differentiated into adipocytes and osteoblasts using Adipocyte Differentiation Medium (Cat# MD-0005) and Osteogenic Differentiation Medium (Cat# MD-0006) (Figure 2), separately. Extensive expansion was not recommended because the cells may lose their multipotent properties.

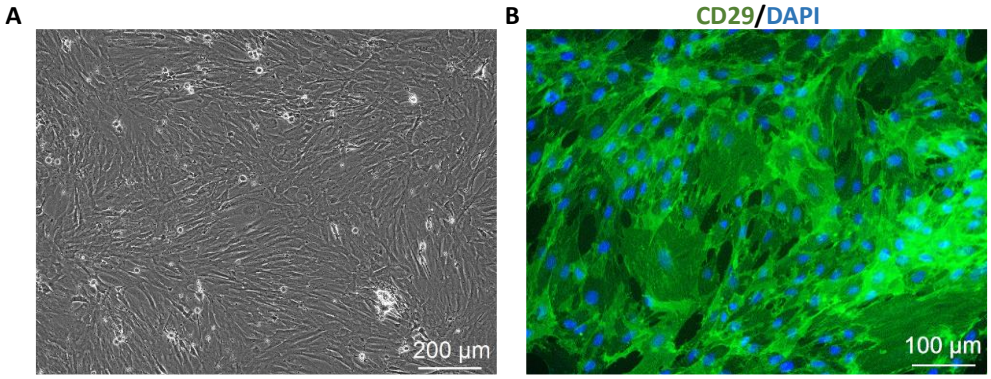

Figure 1. (A) Rat ADSCs-white fat (phase contrast). (**B)** Rat ADSCs-white fat ICC staining using CD29 antibody**.**

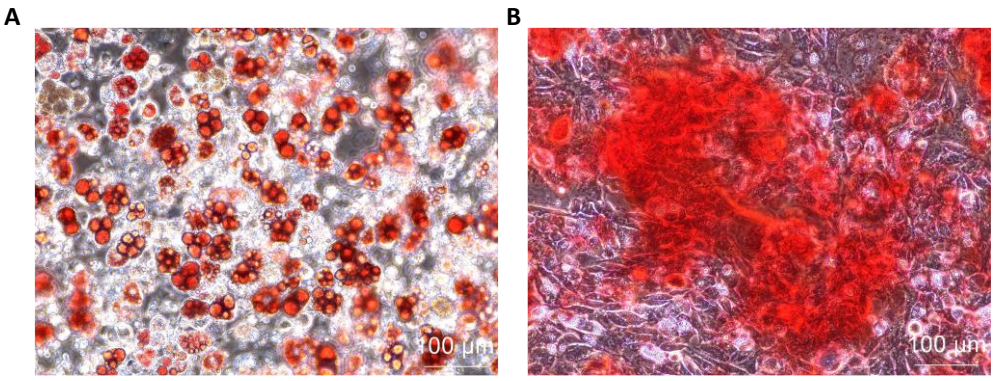

Figure 2. (A): Rat ADSCs-Brown fat adipocyte differentiation (Day 22 post adipogenic induction). **(B)** Rat ADSCs-Brown fat osteogenic induction (Day 24 post osteogenic induction)

Product Details

Tissue	Sprague-Dawley rat inguinal white fat or interscapular brown fat tissue
Package Size	0.5 million 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) Osteogenic Differentiation Medium (Cat# MD-0006)

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 ~1-2 minutes. Keep the cap out of water to minimize the risk of contamination.
3. Pipette the cells into a 15 mL conical tube with 5 mL fresh **Adipose-Derived Stem Cell Growth Medium** (Cat# MD-0003).
4. Centrifuge at 1,000 rpm (~220 *g*) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in desired volume of Adipose-Derived Stem Cell Growth Medium.
6. Culture the cells in T75 flask or the desired culture vessel. Change the medium every other day until cells reach 80-90% confluence. We recommend seeding at 0.5-1.0 × 10^4 cells/cm^2.

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

Standard Culture Procedure

1. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 mL/T75 flask).
2. Add ~2.5 mL 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 cell culture medium.
3. Centrifuge at 1,000 rpm (~220 *g*) for 5 minutes and resuspend the cells in desired volume of Adipose-Derived Stem Cell Growth medium.
4. Seed in the new culture vessels at 5 × 10^3 cells/cm^2. Change the medium every other day until cells reach 80-90% confluence.

Reference

[1] Anna Park, Won Kon Kim, and Kwang-Hee Bae. (2014) Distinction of white, beige and brown adipocytes derived from mesenchymal stem cells. World J Stem Cells. 6(1): 33-42.

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

Disclaimers