

ADIPOSE-DERIVED MESENCHYMAL STEM CELLS

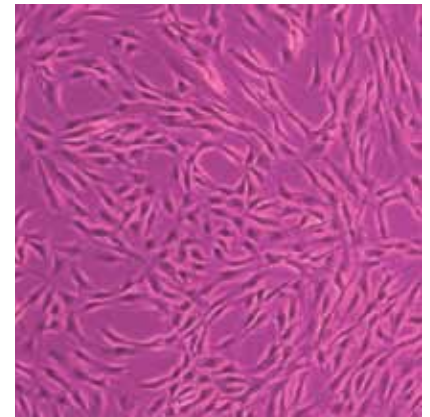
ATCC® Normal Human Adipose-Derived Mesenchymal Stem Cells — when grown in Mesenchymal Stem Cell Basal Medium supplemented with Mesenchymal Stem Cell Growth Kit–Low serum components — provide an ideal cell system for propagation in low serum (2%) conditions and subsequent differentiation.



Each lot of ATCC Normal Human Adipose-Derived Mesenchymal Stem Cells is:

- Cryopreserved in the second passage to ensure the highest viability and plating efficiency
- Performance tested together with ATCC® Primary Cell Solutions™ media, kit supplements and reagents to guarantee optimum reliability
- Thoroughly tested for sample purity as part of the ATCC commitment to quality

Applications for use might include research related to adult stem cell differentiation, tissue engineering, cell therapy, regenerative medicine, and the creation of induced pluripotent stem cell lines.^{1,2}



OPTIMIZED GROWTH MEDIUM MAKES A DIFFERENCE

Primary adipose-derived mesenchymal stem cells are effectively supported by the cell-specific ATCC Primary Cell Solutions system consisting of Mesenchymal Stem Cell Basal Medium supplemented with the Mesenchymal Stem Cell Growth Kit–Low serum. This unique formulation is designed to produce cultures with:

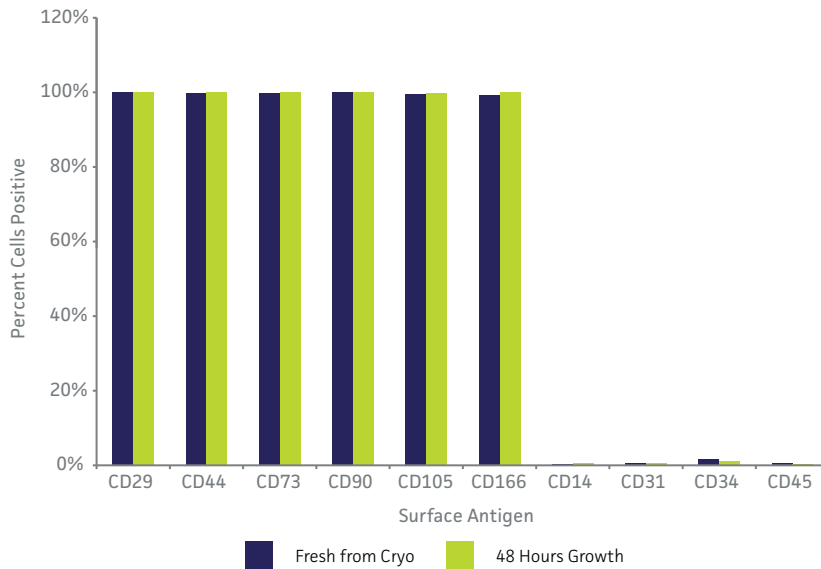
- Functional expression of relevant biomarkers
- Superior growth and proliferation
- Normal morphology
- Multipotent lineage-specific differentiation

Use of this complete system removes the need for additional components such as feeder layers, extracellular matrix proteins or other substrates.

¹ Schäffler, A and Büchler, C. Concise Review: Adipose Tissue-Derived Stromal Cells—Basic and Clinical Implications for Novel Cell-Based Therapies. *Stem Cells* 2007; 25: 818-827.

² Sun, N et al. Feeder-Free Derivation of Induced Pluripotent Stem Cells from Adult Human Adipose Stem Cells. *PNAS* 2009; 106: 15720-15725.

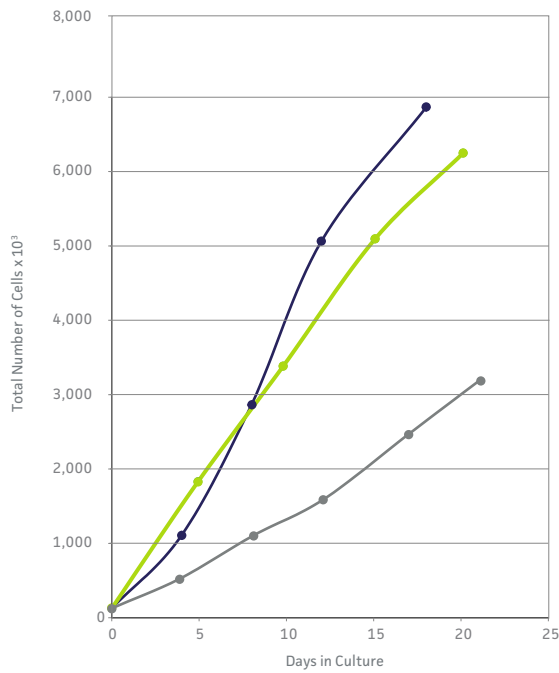
Phenotypic Profile of ATCC Primary Cell Solutions Adipose-Derived Mesenchymal Stem Cells



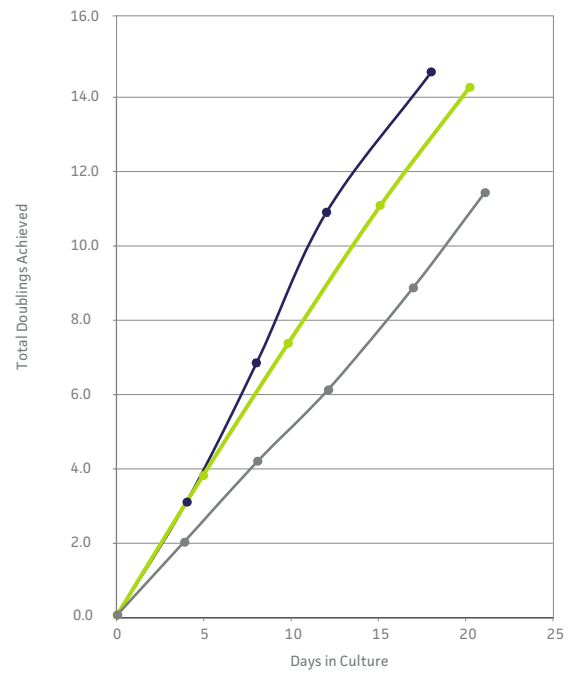
ATCC Primary Cell Solutions adipose-derived mesenchymal stem cells were taken from liquid nitrogen and cultures initiated. A sample for analysis by flow cytometry was taken when the culture was initiated and then after 48-hours of growth. The cells must test positive for CD29, CD44, CD73, CD90, CD105, and CD166 (greater than 95% of the cell population expresses these markers by flow cytometry). The cells must test negative for CD14, CD31, CD34, and CD45 (less than 2% of cell population expresses these markers by flow cytometry).

Growth Rate Comparison*: Adipose-Derived Mesenchymal Stem Cells Cultured in Different Brands of Media

Total Number of Cells

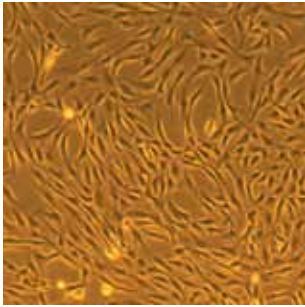


Population Doublings

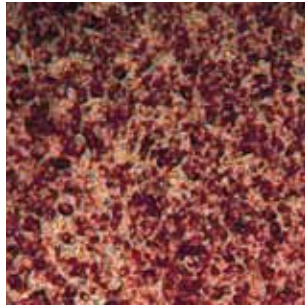


*This experiment was conducted while various lots of ATCC® Primary Cell Solutions™ adipose-derived mesenchymal stem cells were undergoing QC testing. When the QC-specification for population doublings was achieved (≥15) the experiment was concluded; cells grown in Supplier 2 medium did not achieve 15 population doublings.

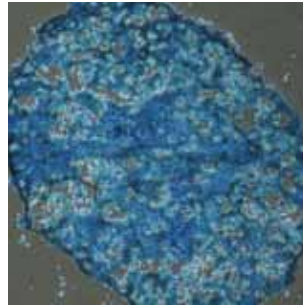
Normal Morphology and Differentiation Capacity



ATCC Complete Mesenchymal Stem Cell Growth Medium maintains adipose-derived mesenchymal stem cells in an undifferentiated state with normal morphology. Passage 3 cells, day 4 (100X magnification).



ATCC Adipose-Derived Mesenchymal Stem Cells were expanded in Complete Growth Medium and then induced to differentiate to adipocytes using the Adipocyte Differentiation Toolkit. The cells are stained with Oil Red O. Passage 3 cells, day 18 following differentiation (100X magnification).



ATCC Adipose-Derived Mesenchymal Stem Cells were expanded in Complete Growth Medium and then induced to differentiate to chondrocytes using the Chondrocyte Differentiation Tool. Passage 3 cells, day 21 following differentiation (100X magnification), stained with Alcian Blue.



ATCC Adipose-Derived Mesenchymal Stem Cells were expanded in Complete Growth Medium and then induced to differentiate to osteocytes using the Osteocyte Differentiation Tool. Passage 5 cells, day 21 following differentiation (40X magnification), stained with Alizarin Red S.

PUTTING ALL THE PIECES TOGETHER ADDS UP TO YOUR SUCCESS.

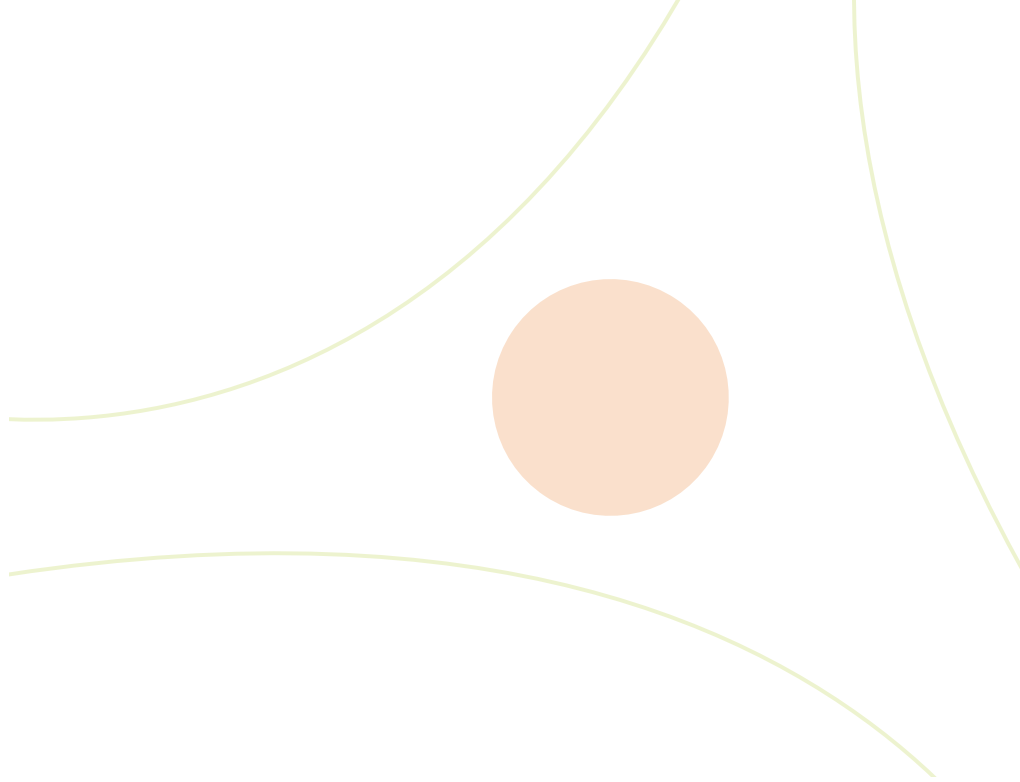


To achieve the best possible results, we suggest that you order a complete system for each cell type:

	Product Name	Components	Catalog No.
1	Adipose-Derived Mesenchymal Stem Cells; Normal, Human	$\geq 1 \times 10^6$ viable cells	PCS-500-011
1	Umbilical Cord-Derived Mesenchymal Stem Cells; Normal, Human— COMING SOON	$\geq 5 \times 10^5$ viable cells	PCS-500-010
2	Mesenchymal Stem Cell Basal Medium	485 mL	PCS-500-030
3	Mesenchymal Stem Cell Growth Kit—Low serum	1 kit	PCS-500-040
4	Phenol Red	1 mL	PCS-999-001
4	Penicillin-Streptomycin-Amphotericin B Solution	1 mL	PCS-999-002
4	Trypsin-EDTA for Primary Cells	100 mL	PCS-999-003
4	Trypsin Neutralizing Solution	100 mL	PCS-999-004
4	Gentamicin-Amphotericin B Solution	1 mL	PCS-999-025
4	Dulbecco's Phosphate Buffered Saline (D-PBS)	500 mL	ATCC 30-2200

DIFFERENTIATION TOOLS

Adipocyte Differentiation Tool-kit	1 kit	PCS-500-050
Chondrocyte Differentiation Tool	100 mL	PCS-500-051
Osteocyte Differentiation Tool	100 mL	PCS-500-052



Additional cells/cell types will be added in the coming months.
Visit us online at www.atcc.org/PCS to bookmark the primary cell page for easy reference.

SUPERIOR QUALITY. EXPERT SUPPORT. RELIABLE RESULTS.

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