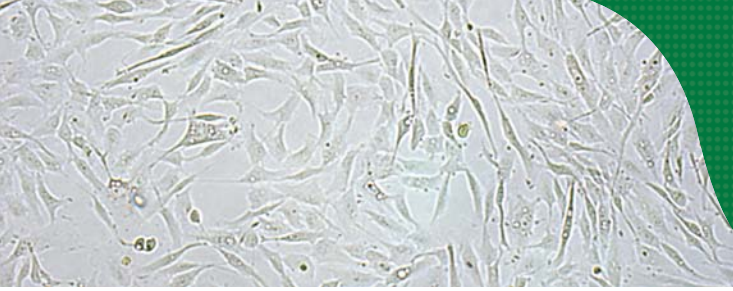

MesenCult™-XF

Defined, Xeno-Free Culture of Human Mesenchymal Stem Cells

Defined, Xeno-Free (XF) Medium for Human Mesenchymal Stem Cells

Reduce variability in your experiments by culturing human mesenchymal stem cells (MSCs) in the xeno-free, serum-free **MesenCult™-XF Medium**.

MesenCult™-XF supports the serum-free isolation of MSCs. Passage 0 cultures obtained from primary human bone marrow show significantly reduced hematopoietic cell contamination compared to serum-based cultures (Figure 3), and MSCs expanded in MesenCult™-XF for two passages show no detectable hematopoietic contamination, as indicated by the lack of CD34 and CD45 expression (Figure 2).

In addition, MSCs cultured in MesenCult™-XF express the mesenchymal markers CD90, CD105, and CD73 (Figure 3) and expand faster than MSCs cultured in serum-based medium (Figure 1). These MSCs also retain the ability to differentiate into multiple lineages (Figure 4), better maintaining chondrogenic differentiation potential after multiple passages (Figure 5). Finally, MSCs cultured in MesenCult™-XF more robustly suppress T cell proliferation and reduce cell cycle division compared to serum-based cultures (Figure 6).

For customized medium formulation and manufacturing requirement requests, contact us at info@stemcell.com.

Ordering Information

PRODUCT	QUANTITY	CATALOG #
MesenCult™-SF Culture Kit*	1 kit	05429
MesenCult™-XF Medium§	500 mL	05420
MesenCult™-SF Attachment Substrate	5 mg	05424
MesenCult™-ACF Dissociation Kit	1 kit	05426

* MesenCult™-SF Culture Kit comprises MesenCult™-XF Medium (Catalog #05420) and MesenCult™-SF Attachment Substrate (Catalog #05424).

§ MesenCult™-XF Medium must be supplemented with L-Glutamine (e.g. Catalog #07100), and must be used in conjunction with MesenCult™-SF Attachment Substrate and MesenCult™-ACF Dissociation Kit, for optimal cell attachment.

MesenCult™-XF is optimized for:

- MSC expansion from primary human bone marrow and cultured-expanded cells
- long-term culture of MSCs (>8 passages)
- enumeration of CFU-F from primary human bone marrow and culture-expanded MSCs

Advantages of MesenCult™-XF

- Defined, xeno-free formulation
- Optimized for use with MSCs obtained directly from primary tissue
- Faster cell expansion compared to traditional serum-based medium
- Cultured MSCs exhibit robust suppression of T cell proliferation
- Minimal lot-to-lot variability

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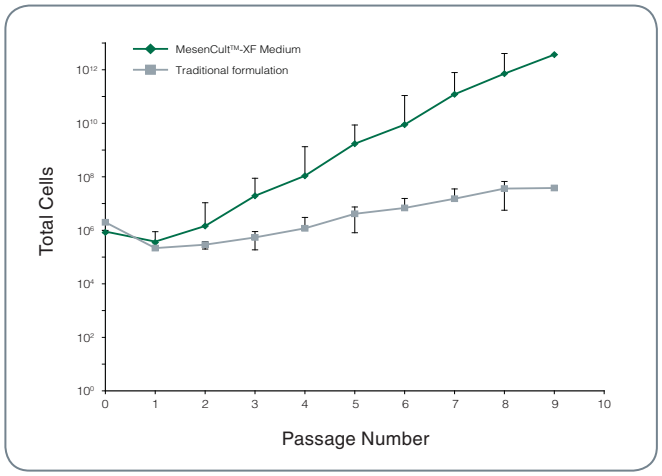
MesenCult™-XF
Xeno-Free MSC Culture Medium

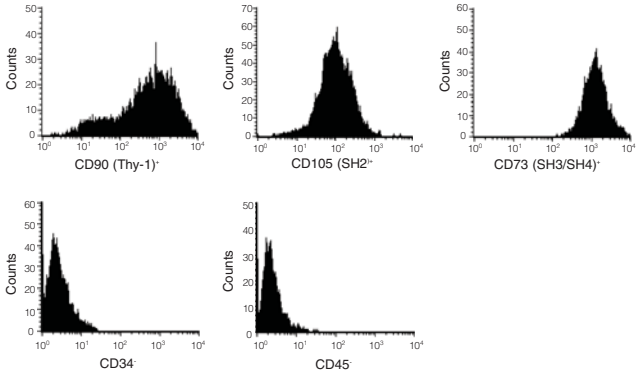
Achieve Faster Expansion

FIGURE 1. Human bone marrow-derived MSCs cultured in MesenCult™-XF expand faster than cells cultured in a traditional serum-based medium (n = 3; Mean ± SEM).



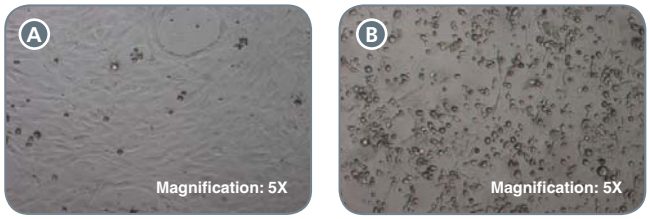
Maintain Cell Surface Phenotype

FIGURE 2. Phenotype of culture-expanded human MSCs cultured in MesenCult™-XF.



Reduce Hematopoietic Cell Contamination

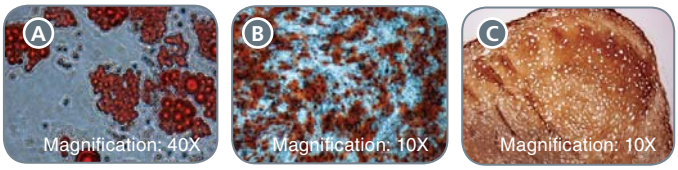
FIGURE 3. Primary human bone marrow-derived MSCs show less hematopoietic cell contamination when cultured in MesenCult™-XF compared to a traditional serum-based medium.



Passage 0 human bone marrow-derived MSCs cultured in MesenCult™-XF (A) or a traditional serum-based medium (B).

Maintain Multi-Lineage Potential

FIGURE 4. Human bone marrow-derived MSCs cultured in MesenCult™-XF display multi-lineage differentiation potential.

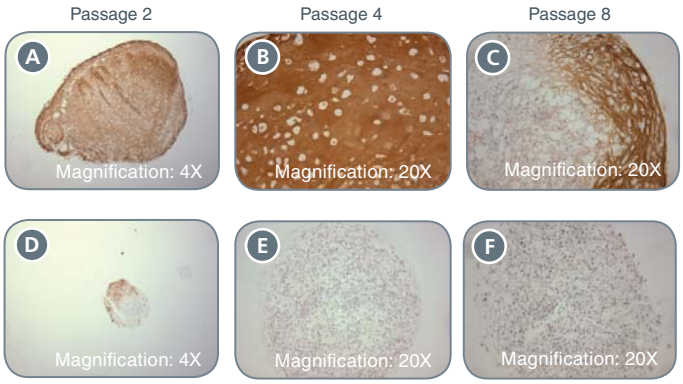


A. Oil red O staining of adipocytes generated from passage 1 MSCs.

B. Alizarin Red detection of Ca^{++} deposits indicates the formation of bone structures in cells generated from passage 4 MSCs.

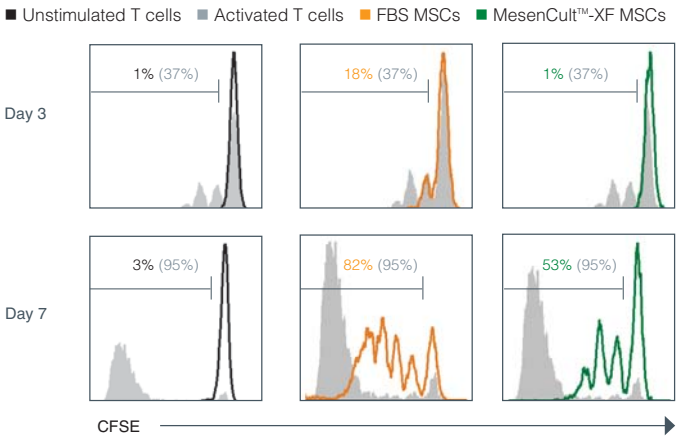
C. Collagen II staining of chondrocytes generated from passage 2 MSCs.

FIGURE 5. MSCs cultured in MesenCult™-XF (A, B, C) better maintain chondrogenic differentiation potential than MSCs cultured in a traditional serum-based medium (D, E, F).



Suppress T Cell Proliferation

FIGURE 6. MSCs cultured in MesenCult™-XF suppress T cell proliferation and reduce cell cycle division more robustly than MSCs cultured in a traditional serum-based medium.



Passage 2 MSCs generated in MesenCult™-XF or a traditional serum-based medium were treated with mitomycin C prior to co-culture with T cells. T cells were purified from peripheral blood using EasySep™ (Catalog #19051) cell separation and fluorescently labeled using 5-(and-6)-carboxyfluorescein diacetate, succinimidyl ester (5(6)CFDA,SE; CFSE) dye. 2 x 10^5 CFSE-labeled T cells were cultured with 1 x 10^5 MSCs in serum-free medium supplemented with 100 U/mL IL-2. T cells were stimulated with tetrameric antibody complexes against CD3ε, CD28 and CD2. On days 3 and 7, cells were harvested, stained with anti-CD45 antibody and propidium iodide and the T cell division history measured as CFSE dye dilution analyzed by flow cytometry.