

KSB-3 Complete Medium[®] Kit

The Innovation of Medium for Mesenchymal Stem Cells



KSB-3 Complete Medium® Kit

The Innovation of Medium for MSCs

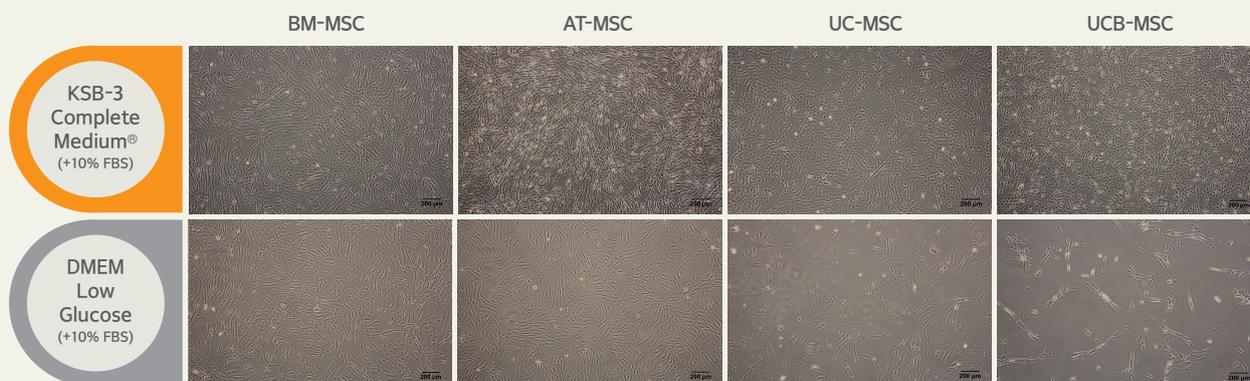
Features, Advantages, and Benefits

- Improve expansion and maintenance of undifferentiated hMSCs derived from BM, AT, UC, and UCB.
- Maintain better homogeneous morphology and smaller cell size through long-term expansion of hMSCs.
- Show high growth rates of hMSCs. (short doubling times, increased cumulative population doublings)
- Reduce the cost of hMSCs expansion. (less medium, less time, and fewer culture dishes & flasks)
- Maintain multi-lineage mesoderm differentiation and cell surface phenotype.

*hMSC, human mesenchymal stem cell; BM, bone marrow; AT, adipose tissue; UC, umbilical cord; UCB, umbilical cord blood

Figure 1

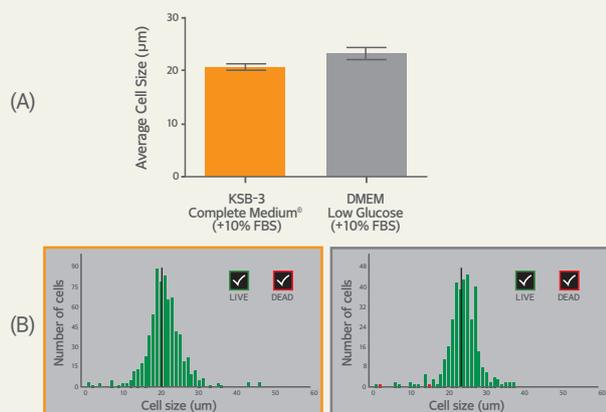
Morphology of Cultured Mesenchymal Stem Cells (MSCs) in KSB-3 Complete Medium or DMEM. All MSCs Exhibited Spindle-Shaped Morphology



While MSCs grown in DMEM have a flattened cell morphology, MSCs grown in KSB-3 Complete Medium have a smaller, spindle-shaped morphology. Appearance of large senescent cells was observed at higher passages in DMEM. (UC-MSCs at passage 6 in DMEM and UCB-MSCs at passage 7 in DMEM). Scale bar = 200 μm . (ImageJ) (Magnification: 40 \times)

Figure 2

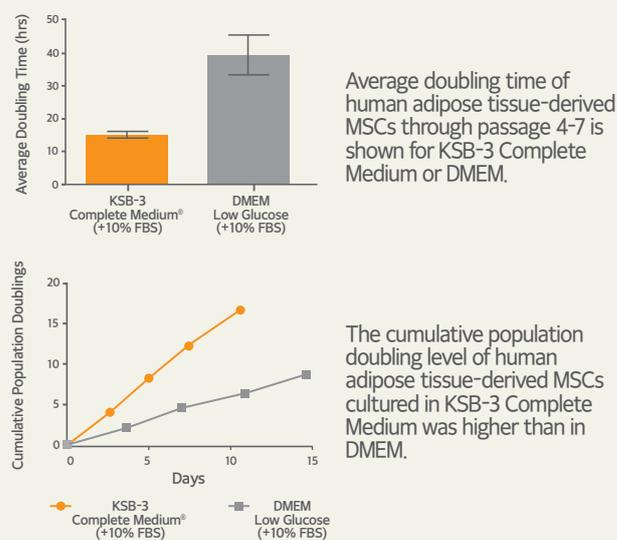
Average Cell Size of Human Adipose Tissue-Derived MSCs in KSB-3 Complete Medium Compared to DMEM



(A) Average cell size of human adipose tissue-derived MSCs at passage 7 in KSB-3 Complete Medium or DMEM. Error bars represent the means \pm SD (n=3) (Prism 6).
 (B) Cell size of human adipose tissue-derived MSCs at passage 7 in KSB-3 Complete Medium or DMEM (Countess FL II). Bars represent the average cell size.
 Average cell size of human adipose tissue-derived MSCs cultured in KSB-3 Complete Medium (left) was smaller than in DMEM (right).

Figure 3

Human Adipose Tissue-Derived MSCs in KSB-3 Complete Medium Expand Faster Than Cells in DMEM



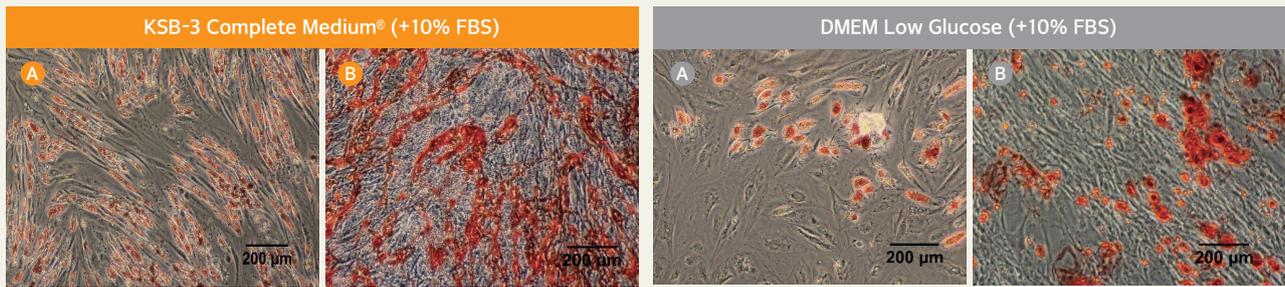
Average doubling time of human adipose tissue-derived MSCs through passage 4-7 is shown for KSB-3 Complete Medium or DMEM.

The cumulative population doubling level of human adipose tissue-derived MSCs cultured in KSB-3 Complete Medium was higher than in DMEM.

KSB-3 Complete Medium supports more efficient expansion of Human adipose tissue-derived MSCs with more consistent doubling time compared to DMEM.

Figure 4

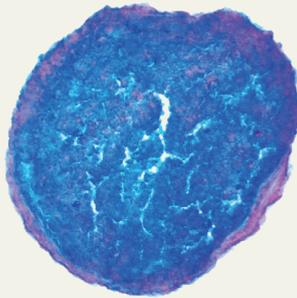
Multi-lineage Differentiation of Human Adipose Tissue-Derived MSCs after 3 Passages in KSB-3 Complete Medium or DMEM



(A) Oil Red O staining of cytoplasmic lipid droplet (red color) after 14days of adipogenic induction, indicating adipocytes or fat cells. (B) Alizarin Red S staining of calcium phosphate deposits (red color) after 21days of osteogenic induction, indicating osteocytes or bone cells. Scale bar = 200 µm. (ImageJ) (Magnification: 40×)
Human adipose tissue-derived MSCs cultured in KSB-3 Complete Medium exhibit the enhanced multi-lineage differentiation potential compared to cells cultured in DMEM.

Figure 5

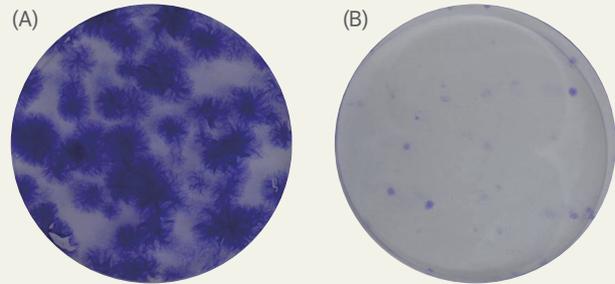
Chondrogenic Differentiation of Human Umbilical Cord Blood-Derived MSCs in KSB-3 Complete Medium



Alcian Blue staining of proteoglycans (blue color) after 21days of chondrogenic induction, indicating chondrocytes or cartilage cells.

Figure 6

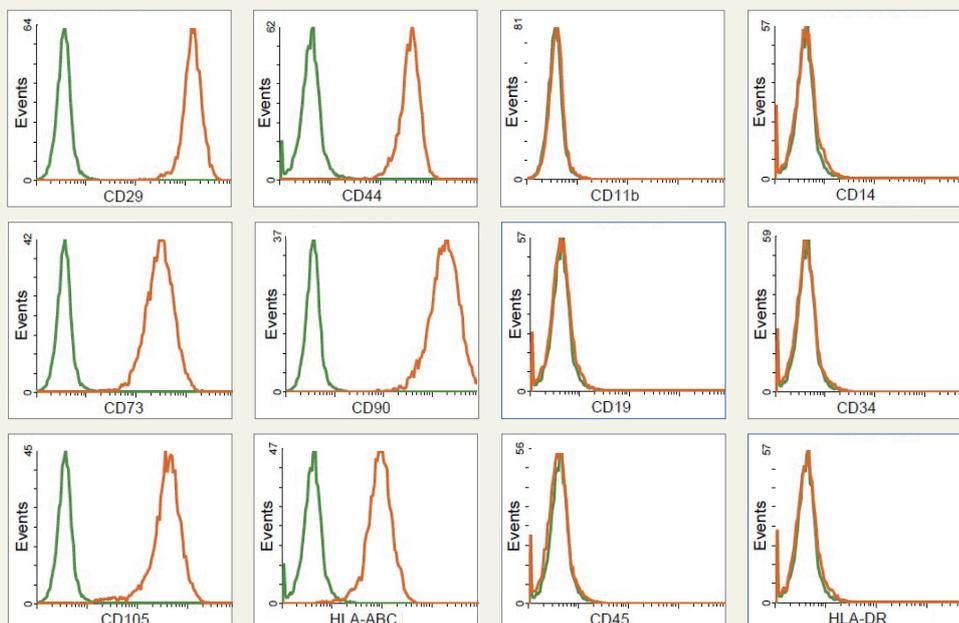
CFU-F Activity of Human Adipose Tissue-Derived MSCs Grown in KSB-3 Complete Medium or DMEM



CFU-F activity of human adipose tissue-derived MSCs grown in KSB-3 Complete Medium (A) is higher than in DMEM (B).

Figure 7

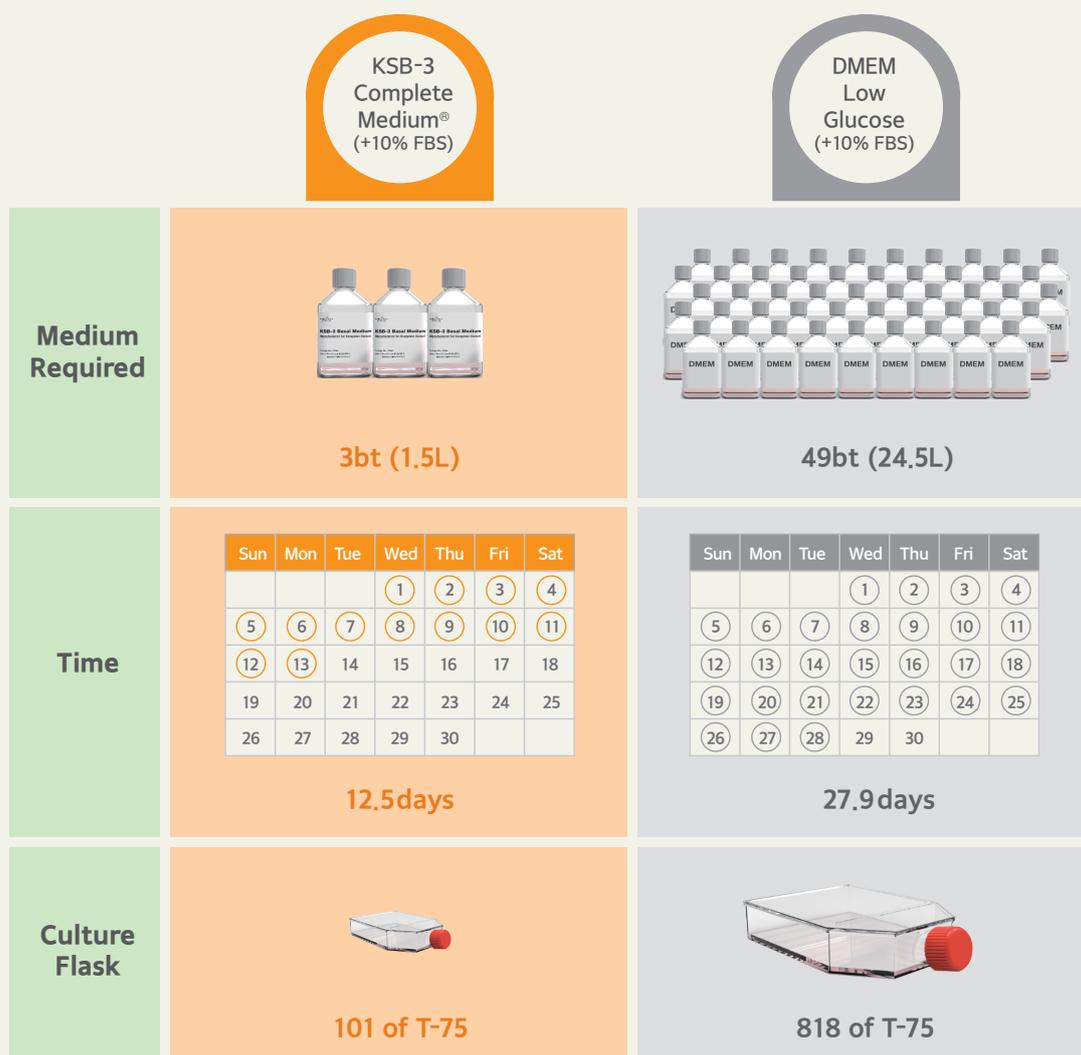
Human Adipose Tissue-Derived MSCs Cultured in KSB-3 Complete Medium Display Characteristic Expression of MSC Surface Markers



Flow cytometry analysis of human adipose tissue-derived MSCs cultured in KSB-3 Complete Medium (passage 7) shows the expression of positive markers and no expression of negative markers.

Figure
8

Theoretical Scale-up of Human Adipose Tissue-Derived MSCs from 10^6 to 10^9 Cells Using KSB-3 Complete Medium versus DMEM



KSB-3 Complete Medium enables scale-up of human adipose tissue-derived MSCs from 10^6 to 10^9 cells using 93.9% less medium, 55.2% less time, and 87.7% fewer culture flasks compared to DMEM.

Content of the Product or Ordering Information

Product	Catalog no.	Size	Storage
KSB-3 Complete Medium® Kit	K3901	1 Kit	-
KSB-3 Basal Medium®	B1001	500mL	2-8 °C
KSB-3 Supplements®	S2901	2mL	-20 °C

► For KSB-3 Complete Medium® Kit enquiries and ordering, contact :

Kangstem Biotech Co., Ltd.

Web <http://www.kangstem.com>

E-mail info@kangstem.com