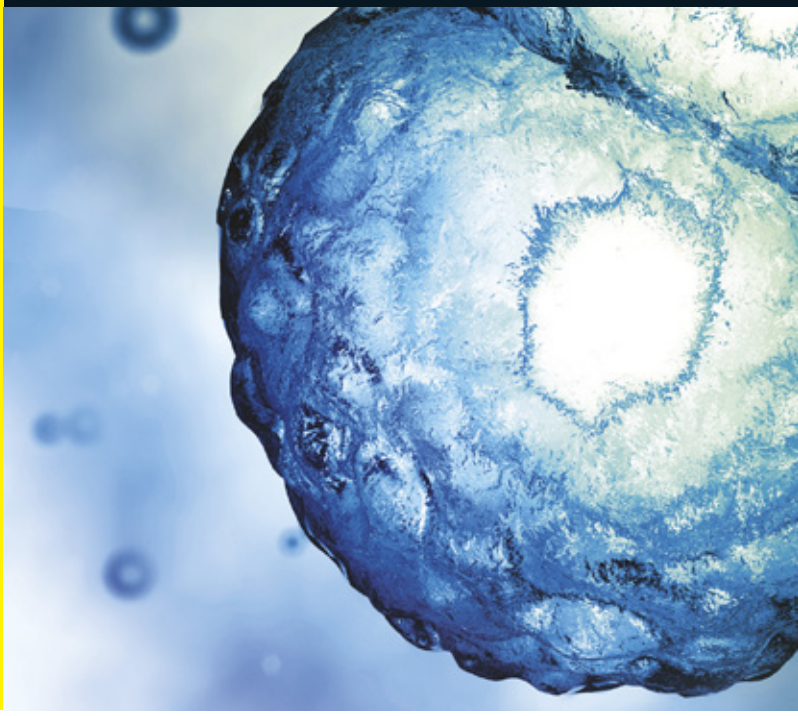
SARTORIUS

Product Datasheet

MSCgo™ Differentiation Media

Advanced Adipogenesis, Osteogenesis, and Chondrogenesis From hMSCs



Redefining Stem Cell Excellence

Whether for basic research, drug discovery, or for therapeutic applications, stem cell differentiation requires standardized culture methods to ensure reproducible and reliable results. The unique line of **MSCgo™ Differentiation Media** offers a complete system for multipotency evaluation of human mesenchymal stem cells (hMSCs), designed to efficiently differentiate hMSCs from a variety of sources into mature adipocytes, chondrocytes, and osteocytes | osteoblasts.

The MSCgo™ Differentiation Media are complete, serum-free, and xeno-free solutions, eliminating the drawbacks of unwanted background differentiation or interruption in cell metabolism, while providing consistent and repeatable results.

Each MSCgo™ Differentiation Medium contains all growth factors and supplements necessary for differentiation to the specified lineage. No adaptation phase is required prior to initiating differentiation when the hMSC's are cultured using NutriStem® MSC XF Medium. The differentiation media are validated with hMSC from a variety of sources, including bone marrow (BM-hMSC), adipose tissue (AT-hMSC), Wharton's jelly (WJ-hMSC), and umbilical cord tissue (CT-hMSC).

Adipogenic Differentiation

MSCgo™ Adipogenic Differentiation Medium is a serum-free and xeno-free formulation developed for optimal differentiation of hMSCs to mature adipocytes. Efficient adipogenic differentiation of hMSCs is achieved through cycles in culture with MSCgo™ Adipogenic Differentiation Medium and maintenance medium (NutriStem® MSC XF Medium). Oil Red-O solution is then used to stain accumulated intercellular lipid droplets, which are an indication of mature adipocytes.

- **Complete, serum-free, xeno-free media**
- **Validated to efficiently differentiate hMSCs from various sources**
- **Simple, efficient protocols**

Osteogenic Differentiation

The **MSCgo™ Osteogenic Differentiation Media** were developed for differentiation serum-free, xeno-free differentiation of hMSCs to mature osteocytes | osteoblasts with ready-to-use media and simple protocols. Osteogenic differentiation of hMSC results in the formation of a mineralized culture that can be detected and semi-quantified by Alizarin Red S (ARS) staining.

Mature osteocytes are generated between 14 and 21 days with the MSCgo™ Osteogenic Differentiation Medium. Faster osteogenesis is observed with the **MSCgo™ Rapid Osteogenic Differentiation Medium**, in which mature osteocytes are observed in less than 10 days.

Chondrogenic Differentiation

The **MSCgo™ Chondrogenic Differentiation Medium** is a complete kit, including basal medium and optimized supplement mix, containing all growth factors and supplements necessary for chondrogenisis of hMSCs from a variety of source tissues. Chondrogenic differentiation of hMSC in 3D spheroid culture results in the formation of cartilage with a typical extracellular matrix rich of Aggrecan, a proteoglycan used as an indicator for cartilage formation and can be detected with Alcian Blue, a dark-blue dye.

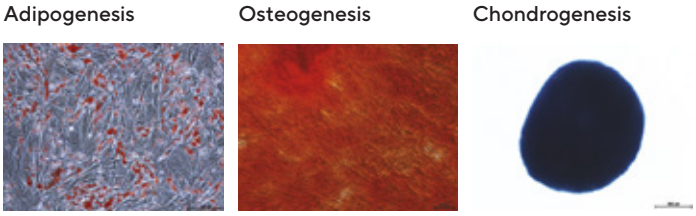


Figure 1: MSCgo™ Differentiation Media is a complete system for multipotency evaluation of hMSCs into mature adipocytes, osteocytes | osteoblasts, and chondrocytes. Images taken of mature differentiated cells from adipose tissue-derived hMSCs.

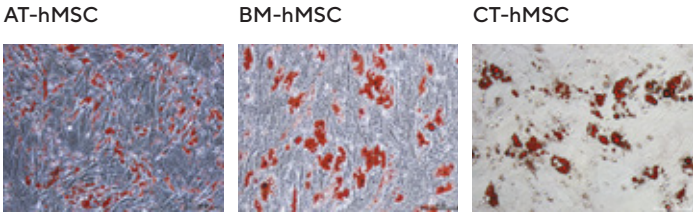
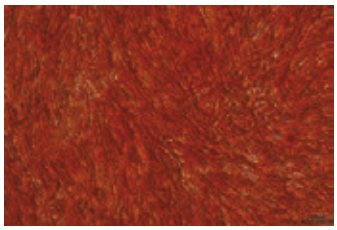


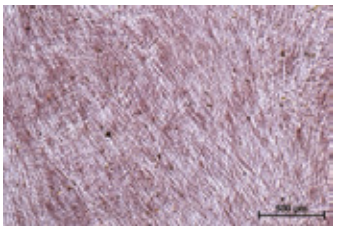
Figure 2: Adipogenesis. After expansion in culture using NutriStem® MSC XF Medium, hMSCs from adipose tissue (AT-hMSC), bone marrow (BM-hMSC), and cord tissue (CT-hMSC) were transferred to a differentiation assay in MSCgo™ Adipogenic Differentiation Medium. Images were taken after 16 days of adipogenesis and Oil Red-O staining (20X).

A

BM-hMSC



BM-hMSC



B

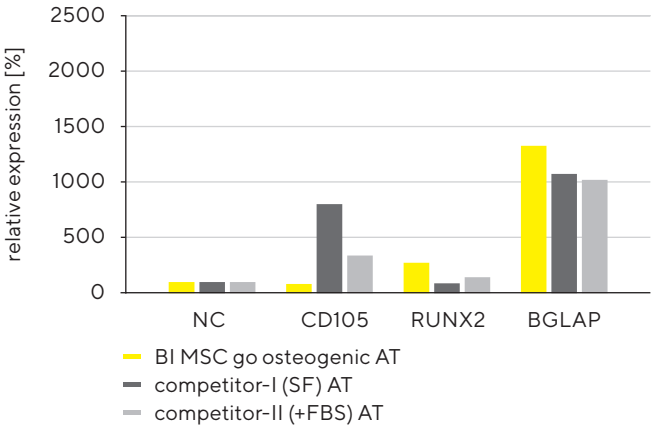
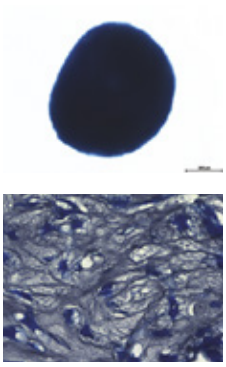
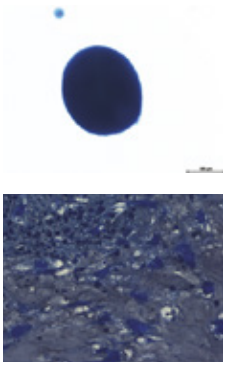


Figure 3: Osteogenic Differentiation. A. BM-hMSCs differentiate into osteoblasts when using serum-free MSCgo™ Osteogenic Differentiation Medium, detected by ARS staining (top). No osteogenesis is observed when serum-containing medium is used (bottom). **B.** The MSCgo™ Osteogenic Differentiation Medium results in the lowest expression of CD105 (hMSC marker), and the highest expression of RUNX2 (osteogenic differentiation marker) and BGLAP (mature osteoblast marker), as compared to other serum-free and serum-containing media.

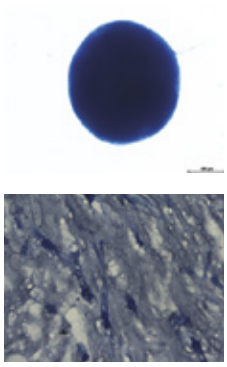
hMSC-AT



hMSC-BM



hMSC-CT



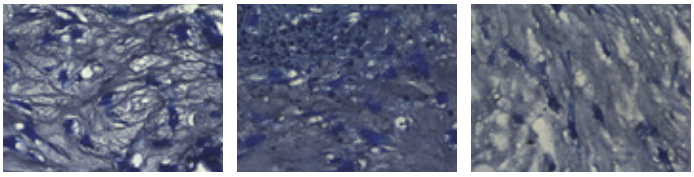


Figure 4: Chondrogenesis. A. Cartilage differentiation from hMSCs after a 21- day assay using MSCgo™ Chondrogenic Differentiation Medium followed by Alcian Blue staining. **B.** Histological images of mature chondrocytes surrounded by a cartilage matrix after a 21-day assay using MSCgo™ Chondrogenic Differentiation Medium followed by Toluidine Blue staining (40X).

Ordering Information

Cat . #	Product	Qty
05-440-1B	MSCgo™ Osteogenic Differentiation Medium	100 mL
05-442-1B	MSCgo™ Rapid Osteogenic Differentiation Medium	100 mL
05-220-1B	MSCgo™ Chondrogenic XF Medium	100 mL
05-221-1D	MSCgo™ Chondrogenic XF Supplement Mix	10 mL
05-330-1B	MSCgo™ Adipogenic XF Medium	100 mL
05-331-1-01	MSCgo™ Adipogenic XF Supplement Mix I	0.1 mL
05-332-1-15	MSCgo™ Adipogenic XF Suuplement Mix II	1.5 mL

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