

MesenCult™ Adipogenic Differentiation Medium (Human)



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Catalog #05412

250 mL

Medium for differentiation of human MSCs into adipocytes

Product Description

MesenCult™ Adipogenic Differentiation Medium (Human) is specifically formulated for the in vitro differentiation of human mesenchymal stem and progenitor cells (MSCs) into adipogenic lineage cells. This kit is suitable for the differentiation of human bone marrow (BM)- and adipose-derived MSCs previously culture-expanded in serum- and animal component-free medium (e.g. MesenCult™-ACF Plus Medium [Catalog #05445]), serum-containing medium (e.g. MesenCult™ Proliferation Kit [Catalog #05411]), or platelet lysate medium (e.g. MesenCult™-hPL Medium [Catalog #05439]).

Product Information

The following components are sold as a complete kit (Catalog #05412) and are not available for individual sale.

PRODUCT NAME	CATALOG #	SIZE	STORAGE	SHELF LIFE
MesenCult™ MSC Basal Medium (Human)	05413	225 mL	Store at 2 - 8°C.	Stable for 12 months from date of manufacture (MFG) on label.
MesenCult™ 10X Adipogenic Differentiation Supplement (Human)	05414	25 mL	Store at -20°C.	Stable until expiry date (EXP) on label.
MesenCult™ 500X Adipogenic Differentiation Supplement (Human)*	05415	0.5 mL	Store at -20°C.	Stable for 12 months from date of manufacture (MFG) on label.

*Please refer to the Safety Data Sheet (SDS) for hazard information. This product contains components dissolved in dimethyl sulfoxide (DMSO). DMSO is a strong solvent and skin penetrant, and can transport many substances through the skin. DMSO can also penetrate some protective glove materials including latex and silicone. Extra caution should be utilized when handling this product.

None of the above components contain antibiotics.

Preparation of Complete MesenCult™ Adipogenic Differentiation Medium (Human)

Use sterile techniques to prepare complete MesenCult™ Adipogenic Differentiation Medium (Basal Medium + 10X Supplement + 500X Supplement). The following example is for preparing 250 mL of complete medium. If preparing other volumes, adjust accordingly.

1. Thaw MesenCult™ 10X Adipogenic Differentiation Supplement (Human) and MesenCult™ 500X Adipogenic Differentiation Supplement (Human) at room temperature (15 - 25°C) or at 2 - 8°C overnight. Thoroughly mix the MesenCult™ 10X Adipogenic Differentiation Supplement (Human).

NOTE: Once thawed, use immediately or aliquot and store supplements at -20°C. Do not exceed the shelf life of the supplements. After thawing the aliquoted supplements, use immediately. Do not re-freeze.

2. Add 25 mL of MesenCult™ 10X Adipogenic Differentiation Supplement (Human) and 0.5 mL of MesenCult™ 500X Adipogenic Differentiation Supplement (Human) to 225 mL of MesenCult™ MSC Basal Medium (Human). Mix thoroughly.

NOTE: If not used immediately, store complete MesenCult™ Adipogenic Differentiation Medium at 2 - 8°C for up to 1 month. Do not exceed the shelf life of the individual components.

Directions for Use

Please read the entire protocol before proceeding.

For instructions on culturing human MSCs using serum- and animal component-free MesenCult™-ACF Plus Medium or MesenCult™ Medium (MesenCult™ Proliferation Kit [Human]), refer to Document #DX22329 or #29562, respectively, available at www.stemcell.com or contact us to request a copy.

For differentiating to the adipogenic lineage, it is recommended to use culture-expanded human MSCs between passages 1 - 4.

The following protocol is for setting up differentiation assays using BM- or adipose-derived MSCs in a 6-well plate. If using other cultureware, adjust volumes accordingly.

NOTE: Only use tissue culture-treated cultureware.

1. Plate cells in 2 mL of growth medium per well. See Table 1 for recommended cell plating densities.

NOTE: If using MesenCult™-ACF Plus Medium, ensure that cells are plated on wells previously coated with Animal Component-Free Cell Attachment Substrate (included in MesenCult™-ACF Plus Culture Kit [Catalog #05448]).

Table 1: Recommended Cell Plating Densities for BM- or Adipose-Derived MSCs

GROWTH MEDIUM	PLATING DENSITY (cells/cm ²)
MesenCult™-ACF Plus Medium (Catalog #05445)	1.5 - 3 x 10 ³
MesenCult™ Medium (Human; Catalog #05411)	2.5 - 6 x 10 ³

2. Incubate cells at 37°C until they are approximately 90 - 100% confluent. This takes approximately 1 - 7 days.
3. Aspirate medium and replace with 2 mL of complete MesenCult™ Adipogenic Differentiation Medium per well.
4. Incubate cells at 37°C and change medium every 3 days using 2 mL of complete MesenCult™ Adipogenic Differentiation Medium per well. The differentiation assay takes approximately 10 - 20 days. During this time, lipid vacuoles should be easily observed under low magnification.
5. Adipogenic differentiation may be visualized by Oil Red O staining.

NOTE: Level of adipogenic differentiation for MSCs may vary depending on cell source, donor, and previous culture conditions.

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