TransDiffer® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Medium

Please read the datasheet carefully prior to use

Cat.No. MM401

Storage: at the proper storage temperature for one year

Description

TransDiffer® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Medium is suitable for differentiating Human Mesenchymal Stem Cells (MSCs) differentiate into chondrocytes. This kit has stable medium composition, high differentiation efficiency and strong universality. It is suitable for MSCs differentiating into chondrocytes from different sources (human pluripotent stem cells, umbilical cord, bone marrow, adipose)

Kit Contents

Component	MM401-01	Storage
TransDiffer® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Basal Medium	95 ml	2-8°C
TransDiffer® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Supplement	5 ml	At -20°C in the dark, avoid repeated freeze-thawing

Procedures

Materials required but not included

Product Name	Catalog
PBS(1×)	TransGen, Cat. FG701-01
Recombinant Trypsin-EDTA Solution（1×）	TransGen, Cat. FG302-01
Paraformaldehyde	Sigma, Cat. P6148
TransDetect® Alcian Blue Staining Solution (pH 2.5)	TransGen, Cat. MM402

1. Preparation of Chondrogenic Differentiation of MSCs complete medium
   Add thawed 5 ml *TransDiffer*® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Supplement to 95 ml *TransDiffer*® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Basal Medium. Mix well.
2. Preparation of 4% Paraformaldehyde
   Add 20 g of Paraformaldehyde to 500 ml of PBS, dissolve by heating at 60°C in a water bath, and adjust the pH to 7.2-7.4. Store at -20°C for later use, and thaw at 2-8°C for use. Store at 2-8°C for no more than two weeks.
3. Differentiation process

(1) Digest well-grown MSCs into single cells with Recombinant Trypsin-EDTA Solution（1×）, transfer 3×10^5 cells to a 15 ml microcentrifuge tube and centrifuge at 300×g for 5 minutes.

(2) Aspirate the supernatant. Add 0.5ml MSCs chondrogenic differentiation complete medium to resuspend the pellet, wash the cells, centrifuge at 300×g for 5 minutes.

(3) Repeat Step (2)

(4) Resuspend the pellet obtained in Step (3) with 0.5 ml MSCs chondrogenic differentiation complete medium, centrifuge at 300×g for 5 minutes.

(5) Unscrew the microcentrifuge tube to facilitate gas exchange and place it in a 37°C, 5% CO_2 incubator (do not shake the microcentrifuge tube within 24 hours.

(6) When the cell clusters appear to aggregate (usually after 24 hours or 48 hours), flick the bottom of the microcentrifuge tube to make the cartilage balls detach from the bottom of the tube and suspend in the liquid.

(7) Change chondrogenic differentiation complete medium every 2-3 days, avoid cartilage balls when changing fluids. Before Day 14, change the 0.5 ml induction differentiation medium every time. After Day 14, change 1 ml induction differentiation medium every time.

(8) Induction was continued for 21-28 days, then discard the induction medium, wash the chondrocytes twice with 3 ml of 1×PBS, and then fix the chondrocytes with 3 ml of 4% Paraformaldehyde.

4. Chondrogenic differentiation identification

(1) The fixed cartilage spheres were embedded in paraffin or frozen.

(2) *TransDetect*® Alcian Blue Staining Solution (pH2.5) (TransGen, Cat. MM402) is recommended for chondrogenic differentiation identification.

Notes

- The cell state of MSCs used for differentiation is an important factor affecting the efficiency of osteogenic differentiation. Please use MSCs with good growth conditions and earlier generation for chondrogenic differentiation.
- *TransDiffer*® Human Mesenchymal Stromal Cell Chondrogenic Differentiation Supplement cannot be subject to repeated freeze-thawing. Thoroughly thaw at 2-8°C before use. The prepared complete medium can be stored stably for 1 month at 2-8°C. Please divide it into a single-use amount and store it at -20°C before use. Avoid repeated freeze-thawing.

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