Human MSC Characterization Kit

Please read the datasheet carefully prior to use.

Cat. No. HF001

Version No. Version 1.0

Storage: at 2-8°C for one year in dark, don not freeze.

Description

Mesenchymal Stromal Cells (MSCs) is a kind of adult stem cell with multiple potential differentiation ability that exists in various tissues (such as bone marrow, umbilical cord, adipose, etc.). MSC also have immunomodulatory effects, so it has broad application prospects in tissue repair and the treatment of autoimmune diseases. Human MSC Characterization Kit is designed for phenotypic analysis of hMSCs by identification of hMSC surface markers through flow cytometryand. The kit contains three fluorochrome-conjugated antibodies for the identification of hMSCs, and one fluorochrome-conjugated antibody for the identification of non-MSCs. When flow cytometry is performed, the ratio of the MSC population which expresses CD105, CD73 and CD90 should be more than 95%, the ratio of the MSC population which expresses CD45 should be less than 2%. The kit uses the multicolor flow cytometry antibody co-staining method, which can minimize the cells amount required for detection. The kit is highly specific, convenient to use, and suitable for identification of hMSCs from various sources.

Kit Contents

Component	Component Catalog	HF001-01	HF001-02
Anti-Human CD73, FITC (Clone: 1H4)	HF101	25 tests	50 tests
Anti-Human CD90, APC (Clone: 5E10)	HF134	25 tests	50 tests
Anti-Human CD105, PE (Clone: 7B2)	HF112	25 tests	50 tests
Anti-Human CD45, PerCP-Cy5.5 (Clone: 1F1)	HF125	25 tests	50 tests

Note:

1. The subtypes of Clone 1H4, 5E10, 7B2 and 1F1 are Mouse IgG1, κ.
2. The spectrum characteristics of each fluorescence are as follows: FITC (Ex: 488 nm; Em: 520 nm), PE (Ex: 488-561 nm; Em: 578 nm), APC (Ex: 633-647 nm; Em: 660 nm) , PerCP-Cy5.5 (Ex: 488 nm; Em: 695 nm).

Procedure

Self-prepared

Product Name	Catalog
Staining Buffer	TransGen, Cat. HF201
FITC Mouse IgG1, κ Isotype Ctrl Antibody	Biolegend, Cat.400107
PE Mouse IgG1, κ Isotype Ctrl Antibody	Biolegend, Cat.400111
PerCP-Cy5.5 Mouse IgG1, κ Isotype Ctrl Antibody	Biolegend, Cat.400149
APC Mouse IgG1, κ Isotype Ctrl Antibody	Biolegend, Cat.400119
OneComp eBeads™ Compensation Beads	Thermo Fisher, Cat. 01-1111-42

(1) Collect MSCs and resuspend them in Staining Buffer, adjust the cell density to 1-10×10^6 cells/ml.

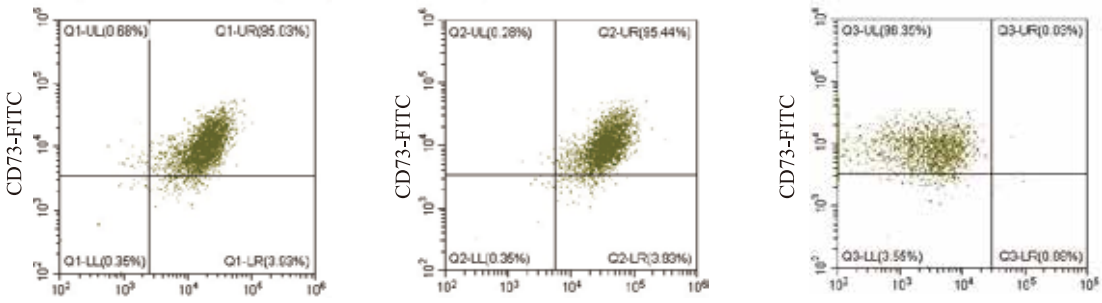
(2) Add 100 µl cell suspension and corresponding antibodies per tube according to the table below.

Number	Name	Sample	Antibodies (5 μl each)
1	Negative Control	MSC	Do not add any label antibody
2	Compensation Control-FITC	MSC or OneComp eBeads™ Compensation Beads	Anti-Human CD73, FITC (Clone: 1H4)
3	Compensation Control-APC	MSC or OneComp eBeads™ Compensation Beads	Anti-Human CD90, APC (Clone: 5E10)
4	Compensation Control-PE	MSC or OneComp eBeads™ Compensation Beads	Anti-Human CD105, PE (Clone: 7B2)
5	Compensation Control-PerCP -Cy5.5	OneComp eBeads™ Compensation Beads	Anti-Human CD45, PerCP-Cy5.5 (Clone: 1F1)
6	Isotype ctrl panel	MSC	FITC Mouse IgG1, κ Isotype Ctrl; PE Mouse IgG1, κ Isotype Ctrl; PerCP-Cy5.5 Mouse IgG1, κ Isotype Ctrl; APC Mouse IgG1, κ Isotype Ctrl
7	MSC characterization panel	MSC	Anti-Human CD73, FITC (Clone: 1H4); Anti-Human CD90, APC (Clone: 5E10); Anti-Human CD105, PE (Clone: 7B2); Anti-Human CD45, PerCP-Cy5.5 (Clone: 1F1)

(3) Mix gently with a pipette. Incubate the solution for 30 minutes in dark at room temperature.
(4) Add 500 μl Staining Buffer, centrifuge solution at 500 × g for 5 minutes and discard the supernatant.
(5) Repeat step (4), add 200 μl Staining Buffer to resuspend cells, place them on ice in the dark, and detect them within 1 hour.
(6) After adjusting the compensation according to numbers 1-5, detect the expression of CD73, CD90, CD105 and CD45 on the surface of MSCs.

Optional: For multi-color flow cytometry analysis, an appropriate compensation control should be used for compensation adjustment. CD45-positive cells such as human peripheral blood mononuclear cells or Jurkat cells can be used instead of OneComp eBeads™ compensation beads for number 5 in this procedure.

Experimental Results



Human umbilical cord-derived MSCs were identified using the Human MSC Characterization Kit. The ratio of the MSC population which expresses CD73, CD90 and CD105 is more than 95%, the ratio of the MSC population which expresses CD45 is less than 2%.

Notes

1. As the optimal concentration of flow cytometric antibody is affected by the number of cells, staining temperature, staining time and other factors, it is recommended that customers optimize titration before formal experiment to obtain the best results.
2. Try to operate gently as much as possible during the entire procedure to avoid too many cell fragments, affecting the experimental results.
3. For your health, please wear gloves and standardize the experiment operation.

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Service telephone +86-10-57815020

Service email complaints@transgen.com