Human bone marrow mesenchymal stem cells

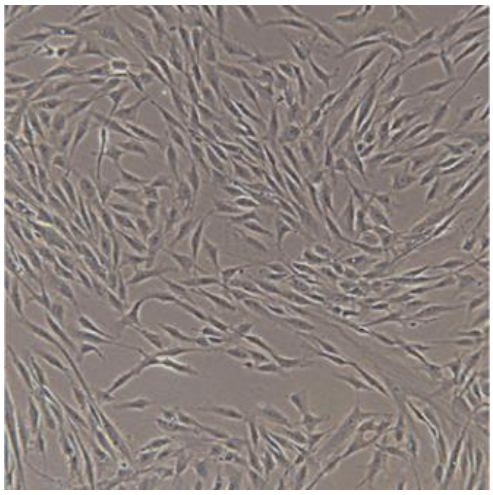
Cat. No.: B00-06A-BMA

Description

Human bone marrow mesenchymal stem cells (BMSC) are derived from human bone marrow and donor eligibility is verified and negative for HIV-1, HIV-2, HBV, HCV, HTLV-1/HTLV-2, Syphilis, CMV, EBV, HSV1/2, B19 virus and Dengue virus.

Cells have been validated for high expression levels of cell surface molecules that are present on mesenchymal stem cells: CD73, CD90, and CD105, and for their absence of hematopoietic lineage markers, CD14, CD19, CD34, CD45 and HLA-DR. The cells have also been validated for their self-renewal and multi-lineage differentiation capacities.

Cells display normal karyotype as assessed by G-banding of metaphase cells and tested negative for mycoplasma and passed the sterility test.

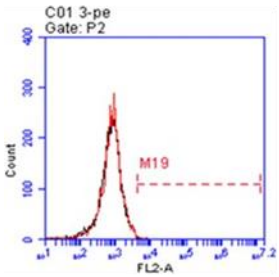


Human bone marrow mesenchymal stem cells from Expercy Medical Ltd.

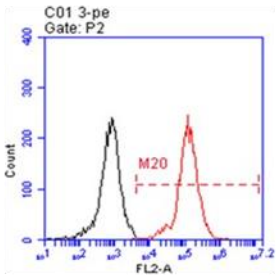
Specification

Size/Quantity	1 x 10^6 cell/ml, 1ml
Sipping	Dry ice
Storage	Directly and immediately transfer cells to liquid nitrogen upon receiving and keep the cells in liquid nitrogen until cell culture is needed for experiments.
Note	All products are for research use only. They are not approved for human or animal use, or for application in IVD procedures.

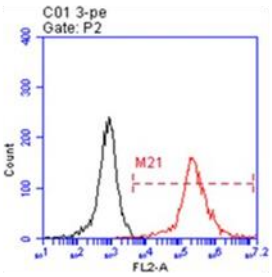
CD markers of BMSC



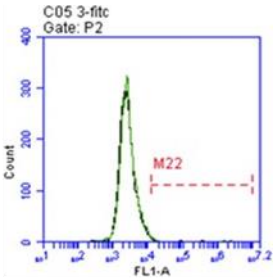
CD34-



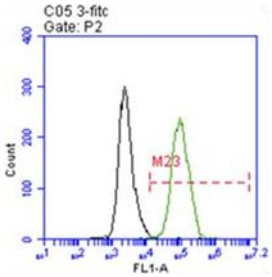
CD73+



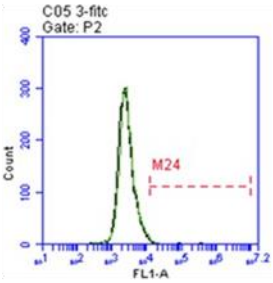
CD90+



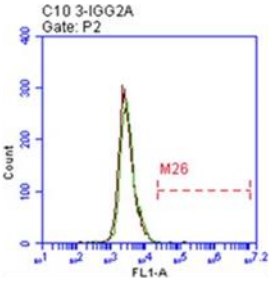
CD45-



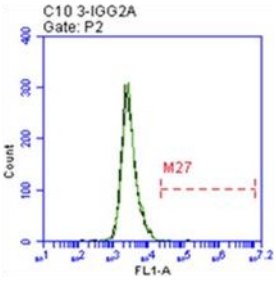
CD105+



CD19-



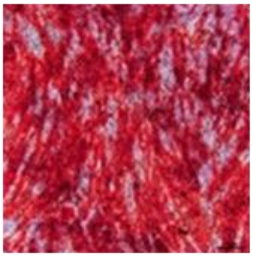
CD14-



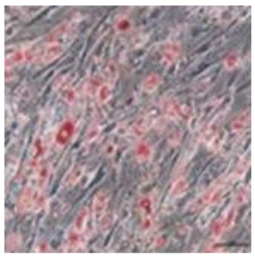
HLA-DR-

Trilineage differentiation of BMSC

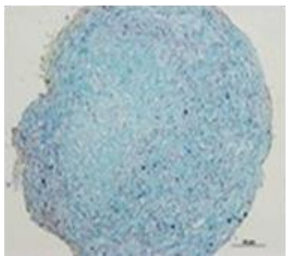
Osteogenesis



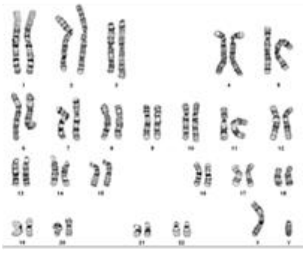
Adipogenesis



Chondrogenesis



Karyotyping of BMSC



Thawing and Culturing Procedures:

Human Mesenchymal Stem Cells (BMSC) are primary cells which can be cultured for approximately five to six passages. The following is the recommended protocol for thawing and subculturing of these cells.

Suggestion MSC Expansion media

- SF1 hMSC medium
- Prime-XV MSC expansion SFM
- NutriStem MSC XF medium
- StemPro MSC SFM
- DMEM with 10% FBS

Note: Once completed media has been formulated, it should be stored at 2-8°C. Avoid extended exposure of the medium to room or higher temperatures. Medium should be equilibrated in a water bath set at 37°C before adding media to any cell culture.

Protocol:

1. Remove the vial of cells from dry ice. Defrost the vial of cells in a 37°C water bath with constant, moderate agitation, until ice in the vial is no longer visible.
2. Immediately disinfect the vial with 70% ethanol.
3. Working in a laminar flow hood, open the vial and transfer the contents to a sterile 15 mL tube.
4. Very slowly, add approximately 10 mL of complete MSC Expansion media, pre-warmed to 37°C.
5. Centrifuge the suspended cells at 800 x g for 10 minutes.
6. Decant the medium and gently re-suspend the pellet in 10 mL of complete MSC Expansion media, then transfer into a culture flask at a density of 2,000 to 5,000 cells/cm^2 or desired plating density.
7. Place the flask in an incubator at 37°C, 5% CO_2, and 90% humidity.
8. When cultures have reached approximately 80% confluence, it will be ready to subculture. Cells should be subculture at a density of 2,000 to 5,000 cells/cm^2 or desired plating density.

References:

- Mesenchymal Stromal Cells and Cutaneous Wound Healing: A Comprehensive Review of the Background, Role, and Therapeutic Potential. *Stem Cells Int. 2018 May 20:2018:6901983.*
- Mesenchymal Stem Cells for Regenerative Medicine. *Cells. 2019 Aug; 8(8): 886.*