



Product Information Sheet

Human Bone Marrow Derived Mesenchymal Stem Cells (Low Passage)

Catalog Numbers: ORF.HBMMSC-500

Product Overview	
Product Name	Human Bone Marrow Derived Mesenchymal Stem Cells (Low Passage)
Catalog Numbers	ORF.HBMMSC-500
Sizes	≥500,000 cells/vial
Product Form	Cryopreserved (Frozen)
Cell Type	Human Bone Marrow Mesenchymal Stem Cells
Additional Reagents Required	OptiElite MSC Growth Medium

Product Description	Product Image
<p>ORF Biologics' Human Bone Marrow Derived Mesenchymal Stem Cells are isolated from a single healthy adult donor and expanded to low passage to ensure consistent growth characteristics, a stable phenotype, and highly reproducible experimental outcomes. These primary stromal cells exhibit strong viability and maintain the classic multipotent capacity of bone marrow-derived MSCs, including robust adipogenic, osteogenic, and chondrogenic differentiation, as well as the ability to adopt additional lineage-like phenotypes under optimized culture conditions. Naturally involved in maintaining musculoskeletal homeostasis and supporting hematopoietic function within the marrow microenvironment, these cells provide a biologically relevant and dependable model for studying cell-matrix interactions, developmental pathways, and tissue repair processes. With reliable expansion, well-characterized identity markers, and predictable behavior across applications, ORF Biologics' hBM-MSCs offer an ideal platform for tissue engineering, regenerative medicine research, disease modeling, biomaterials and scaffold evaluation, and a wide range of advanced cell-based assays requiring consistent and high-quality human mesenchymal cells.</p>	

For research applications only. Not for diagnostic or therapeutic use.



Cell Characteristics	
Growth Characteristics	Adherent monolayer under standard culture conditions
Cell Origin	Human Bone Marrow

Cell Thawing and Plating Protocol	
Thawing	To thaw hBM-MSC cells, remove the vial from dry ice or liquid nitrogen storage and promptly place it in a 37°C water bath. Gently agitate the vial continuously while monitoring for thawing. As soon as only a small amount of ice remains, remove the vial from the bath to prevent over-thawing, which can compromise cell viability. Immediately disinfect the outside of the vial using 70% isopropanol before proceeding to the next step.
Plating	Working under sterile conditions in a laminar flow hood, carefully open the vial and transfer the contents to a sterile 15 mL conical tube. Slowly add approximately 9 mL of supplemented OptiElite MSC Growth Medium, pre-warmed to 37°C, to the cell suspension. Centrifuge the tube at 200 × g for 10 minutes to pellet the cells. After centrifugation, discard the supernatant and gently resuspend the pellet in an appropriate volume of fresh, pre-warmed supplemented OptiElite MSC Growth Medium to achieve a plating density of 20,000 cells per cm ² of surface area. Transfer the resuspended cells into a suitable culture flask or dish. After 24 hours, aspirate the medium, and replace with fresh, pre-warmed supplemented OptiElite MSC Growth Medium.
Observation and Expansion	Following thawing, it is normal for hBM-MSC cells to grow slowly during the first week. Some cell loss may occur during initial medium exchanges, which is expected. Once the culture reaches approximately 70–80% confluence, the cells should be sub-cultured using a 1:3 split ratio. For passaging, use 0.25% Trypsin-EDTA solution (not included), following standard cell culture protocols.

Storage and Stability		
	Storage Temperature	Storage Time
Human Bone Marrow Derived Mesenchymal Stem Cells (ORF.HBMMSC-500)	Liquid Nitrogen	12 months
OptiElite MSC Growth Media (Base Media) (ORF.OEMSC-450, ORF.OEMSC-900)	2–8°C	3 months
Supplemented OptiElite MSC Growth Medium	2–8°C	Up to 3 weeks
Avoid repeated freeze-thaw cycles for cells. Avoid repeated exposure to room temperature and light for media.		

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