

## Human Mesenchymal Stem Cell (HMSC) Systems and Media

**Adipose (HMSC-Ad)**  
**Pre-Adipocyte (HMSC-Pre-Adipocyte)**

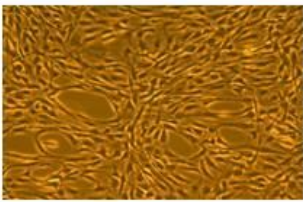
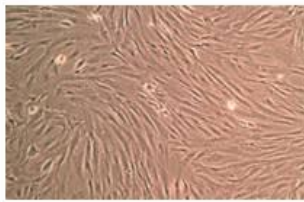
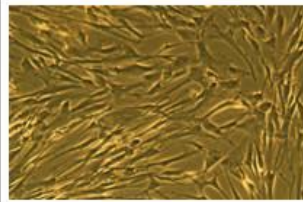
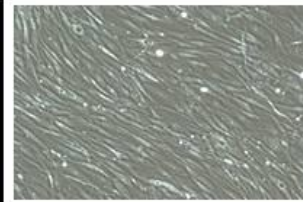
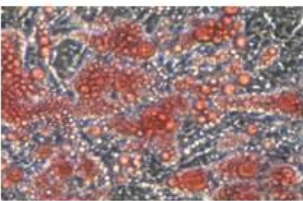
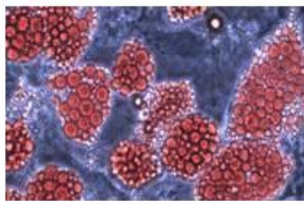
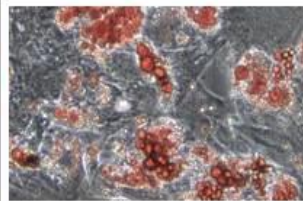
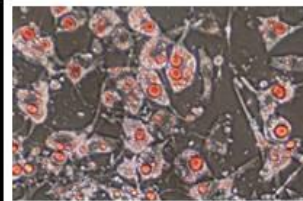


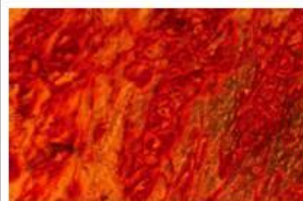
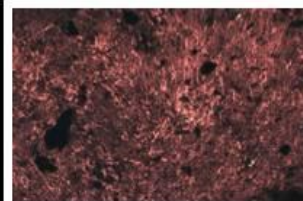
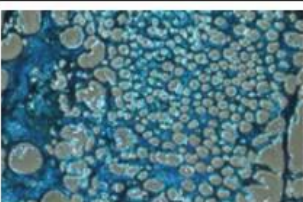
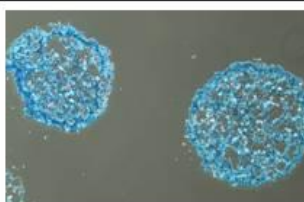
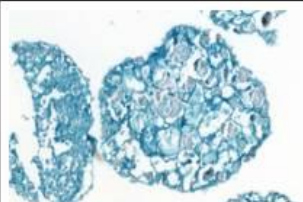
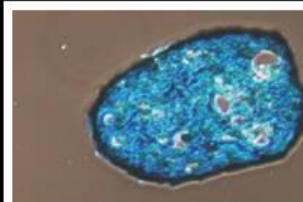
**Bone Marrow (HMSC-BM)**  
**Wharton's Jelly (HMSC-WJ)**

Lifeline provides Mesenchymal Stem Cells from different anatomical sites. HMSC-Ad are isolated from adipose tissue. HMSC-BM are isolated from bone marrow tissue. HMSC-WJ are isolated from Wharton's Jelly of the umbilical cord. HMSC-Pre-Adipocyte are isolated from mature adipocytes.

Lifeline's HMSC are characterized by flow cytometry to ensure the proper expression of multiple markers of mesenchymal stem cells. They are uniformly positive for CD29, CD44, CD73, CD90, CD105, and CD166. They are uniformly negative for CD14, CD31, CD34, and CD45.

Lifeline's HMSC products provide ideal models for the study of multipotent stem cell biology and differentiation processes. These cells may be differentiated down the typical mesenchymal lineages; such as adipogenic, chondrogenic, and osteogenic.

Lifeline has developed optimized media to expand the HMSC products in the undifferentiated state, as well as optimized media kits for inducing Adipogenesis, Chondrogenesis, and Osteogenesis. Additionally, Lifeline provides convenient staining kits for staining the fully differentiated cells.

	HMSC-Ad	HMSC-BM	HMSC-WJ	HMSC-Pre-Adipocyte
Undifferentiated				
Differentiated to Adipocytes				
Differentiated to Osteoblasts				
Differentiated to Chondrocytes				

To place an order, please visit [lifelinecelltech.com](http://lifelinecelltech.com) or call customer service at 877.845.7787.

## Product Ordering Information

### Mesenchymal Stem Cells

Part Number	Cell Type
<a href="#">FC-0020</a>	HMSC-WJ – Derived from the Wharton’s Jelly of the umbilical cord
<a href="#">FC-0034</a>	HMSC-Ad – Derived from adipose tissue
<a href="#">FC-0057</a>	HMSC-BM – Derived from bone marrow
<a href="#">FC-0062</a>	HMSC-Pre-Adipocyte – Derived from mature adipocytes that have been dedifferentiated

### Expansion Media

Part Number	Components	For Use With Cell Part Number(s)
<a href="#">LL-0034</a>	StemLife™ MSC Medium Complete Kit (StemLife Basal Medium + StemLife MSC LifeFactors® Kit)	<a href="#">FC-0020</a> <a href="#">FC-0034</a>
<a href="#">LL-0062</a>	StemLife MSC-BM Medium Complete Kit (StemLife Basal Medium + StemLife MSC-BM LifeFactors Kit)	<a href="#">FC-0057</a>
<a href="#">LL-0011</a>	FibroLife® S2 Medium Complete Kit (FibroLife Basal Medium + FibroLife S2 LifeFactors Kit)	<a href="#">FC-0062</a>

### Differentiation Media

Part Number	Components	For Use With Cell Part Number(s)
<a href="#">LL-0050</a>	AdipoLife™ DfKt™-1 (AdipoLife Basal Medium + DiffFactor™ 1 + DiffFactor 2)	<a href="#">FC-0034</a> <a href="#">FC-0062</a>
<a href="#">LL-0059</a>	AdipoLife DfKt-2 (AdipoLife Basal Medium + DiffFactor 3)	<a href="#">FC-0020</a> <a href="#">FC-0057</a>
<a href="#">LM-0022</a>	ChondroLife™ Complete Chondrogenesis Medium, 100 mL	<a href="#">FC-0020</a> <a href="#">FC-0034</a> <a href="#">FC-0057</a> <a href="#">FC-0062</a>
<a href="#">LM-0023</a>	OsteoLife™ Complete Osteogenesis Medium, 100 mL	<a href="#">FC-0020</a> <a href="#">FC-0034</a> <a href="#">FC-0057</a> <a href="#">FC-0062</a>

### Staining Reagents and Additional Products

Part Number	Components	Part Number	Components
<a href="#">CM-0058</a>	2% Alizarin Red Stain	<a href="#">LS-1009</a>	Phenol Red Supplement
<a href="#">LL-0051</a>	Alcian Blue Staining Kit	<a href="#">LL-0013</a>	TrypKit™ Subculture Reagent Kit
<a href="#">LL-0052</a>	Oil Red O Staining Kit	<a href="#">LM-0015</a>	FrostaLife™ Cryopreservation Solution
<a href="#">LS-1104</a>	GA Antimicrobial Supplement (Gentamicin 30 mg/mL, Amphotericin B 15 µg/mL); provided with purchase of LL-0034, LL-0058, or LL-0011		

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## NORMAL HUMAN MESENCHYMAL STEM CELLS ARE TESTED FOR:

• Cell Count	HMSC-WJ – 500,000 cryopreserved cells per vial HMSC-Ad – 1,000,000 cryopreserved cells per vial HMSC-BM – 1,000,000 cryopreserved cells per vial HMSC-Pre-Adipocyte – 1,000,000 cryopreserved cells per vial
• Proliferation and Morphology	Normal cell appearance for 3 passages
• Cell Viability	Minimum 70% viability when thawed from cryopreservation
• Sterility Testing	Negative for mycoplasma Negative for bacterial and fungal growth
• Virus Testing	Negative for HIV-1, HIV-2, HBV, and HCV by PCR
• Specific Staining	Positive for CD29, CD44, CD73, CD90, CD105, CD166 Negative for CD14, CD31, CD34, CD45

### Quality Testing for Guaranteed Consistency and Reproducible Results

Lifeline Cell Technology manufactures products using the highest quality raw materials and incorporates extensive quality assurance in every production run. Exacting standards and production procedures ensure consistent performance.

### The Lifeline® Guarantee

Lifeline's rigorous quality control ensures sterility and performance to standardized testing criteria. All donated tissues have been obtained under proper informed consent and adheres to the Declaration of Helsinki, The Human Tissue Act (UK), CFR Title 21, and HIPAA Regulations relative to obtaining and handling human tissue for Research Use.

Upon request, Lifeline will provide lot specific QC test results, material safety data sheets, and certificates of analysis. See complete guarantee/warranty statement at [lifelinecelltech.com](http://lifelinecelltech.com) or contact your Lifeline representative for more information.

### Safety Statement

This product is For Research Use Only. This product is not approved for human or veterinary use, or for use in *in vitro* diagnostic or clinical procedures.

Lifeline recommends storing cryopreserved vials in liquid nitrogen vapor phase. Handle cryopreserved vials with caution. Always wear eye protection and gloves when working with cell cultures. Aseptically vent any nitrogen from cryopreserved vials in a biosafety cabinet prior to thawing the vials in a water bath. If vials must be stored in liquid phase, the vials should be transferred to vapor phase storage or -80°C for up to 24 hours prior to being thawed.

**Call Lifeline's Customer Service at 877.845.7787**  
or visit [lifelinecelltech.com](http://lifelinecelltech.com) for more information

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