Cell Therapy
Mesenchymal Stem Cells

Bone Marrow, Umbilical Cord, and Adipose-Derived Mesenchymal Stem Cells

Stem cell therapy relies on the regenerative potential of mesenchymal stem cells (MSCs) sourced from bone marrow (BMSCs), umbilical cords (UCMSCs), and adipose tissue (ADMSCs). To ensure MSC viability and proliferation after isolation, high-quality reagents and supplements are essential. Using products specifically designed for stem cell expansion and maintenance maximizes therapeutic outcomes. MP Biomedicals offers solutions that support MSCs from initial passage zero (P0) through expansion, characterization, and applications in later passages (P4–P6), regardless of source or intended use.

BMSCs are known for versatility in differentiating into multiple cell types and their critical role in supporting tissue repair and regeneration.

UCMSCs collected at birth, have powerful regenerative properties, such as differentiation and supporting immune regulation.

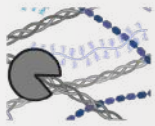
ADMSCs are abundant, easy to harvest, and ideal for tissue repair and regeneration.

Syringe Flush

Dislodge MSCs from their environment with mechanical force.

Tissue Fragmentation

Sectioning adds surface area for cell attachment and proliferation.

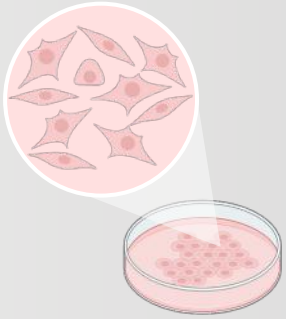


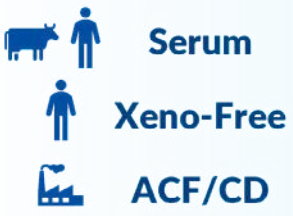
Enzymatic Digestion

Degrading extracellular matrix and adhesion molecules to enable MSC release.

Isolated Mesenchymal Stem Cells

Maintaining MSCs in vitro is essential for supporting their proliferation, overall health, and regenerative potential in therapeutic research and applications.



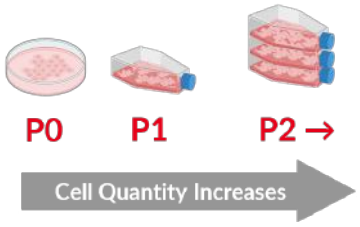


Culturing & Expansion of MSCs

MP Biomedicals offers a range of products to support MSCs in serum, xeno-free, and animal component free (ACF) or chemically defined (CD) environments, tailored for each step of fundamental research, translational phases, and clinical applications.

MSCs Expansion & Maintenance

Culturing and expanding MSCs requires specialized supplements tailored to their specific applications and regulatory standards. To support MSCs from P0 through P4-P6, a complete medium rich in vitamins, amino acids, growth factors, and essential nutrients is required. Explore the products below to find the ideal solution for your MSC culture needs!



Basal Medium

Successful MSC culture relies on essential basal components that maintain cell health, including vitamins, amino acids, carbohydrates, nucleotides, and a buffering system. MP Biomedicals offers a variety of basal media commonly used by stem cell researchers and biomanufacturing organizations.

BM-MSCs	AD-MSCs	UC-MSCs
DMEM	DMEM/F12	DMEM
RPMI1640	RPMI1640	RPMI1640
-	MEM-α	MEM-α

Growth & Cell Health Supplements

To promote the proliferation and maintain MSCs health, basal media is often supplemented with growth factors, hormones, and attachment factors.

Serum

Bovine (FBS) and human serum provide growth factors, hormones, and nutrients for MSC proliferation and health. Human serum is favored in clinical settings to reduce immune reactions.

Human Serum Pooled
Cat. No. 092931149

Human Serum Type AB
Cat. No. 092931949

FBS, USDA Approved
Cat. No. 092910154

FBS, USA Origin
Cat. No. 092916754

Xeno-Free

Xeno-free environments use only human-derived components, avoiding animal materials to minimize immune reactions and pathogen risks. In MSC culture, xeno-free media with human platelet lysate (hPL) delivers essential growth factors, supporting adhesion, differentiation, and clinical applications.

Growth Factors	hPL	hEGF	h-Albumin	SupraGLN
Attachment Factors	h-Fibronectin	h-Vitroectin	h-Albumin	Poly-L-Lisine
Hormones	Insulin	Hydrocortisone	L-Thyroxine	Dexamethasone

Human Platelet Lysate, GMP Grade
Cat. No. 08810251

Human Albumin
Cat. No. 08823022

Human Fibronectin
Cat. No. 0855913

rh-Insulin
Cat. No. 02193900

Animal Component-free and Chemically Defined

Animal component-free (ACF) and chemically defined (CD) media are free of all animal-derived materials and provide essential nutrients for cell growth. They offer precise control over culture conditions, making them ideal for supporting MSC growth and differentiation.

Growth Factors	rh-EGF	rh-Albumin	SupraGLN	L-Glutamine	Glucose	NEAA
Attachment Factors	RGD-Peptide	Poly-L-Lysine	Chitosan	Poly-D-Lysine	-	-
Hormones	rh-Transferrin	rh-Insulin	Hydrocortisone	L-Thyroxine	LIF	-

rh-Albumin 20% (yeast)
Cat. No. 0898322

SupraGLN
Cat. No. 0916803

rh-Transferrin
Cat. No. 0898326

Analysis & Banking

MSCs derived from tissue and expanded for banking require analysis for purity, viability, quantity, phenotype, and sterility. MP Biomedicals offers viability kits, microbial testing, and cryogenic solutions to meet these needs with the highest standards.

Cell Viability	FastCounting™ Counting Kit	09269013
	Trypan Blue, 0.4% solution in PBS	091691049
	2X Bright Live-Cell Imaging Buffer	092696001
Mycoplasma Detection	Myco-Visible Mycoplasma PCR Detection Kit	093051401
	Myco-Visible Mycoplasma Rapid Test Kit	09305090
	Myco-Visible Mycoplasma LAMP Detection Kit	093050601
Cryo-Banking	2-8 CELLsium™ medium for short-term cell storage	0927803
	Cryopres™ Dimethyl Sulfoxide (DMSO), USP, PhEur grade	0927801
	Cellvation™ (No DMSO, FBS, ACF solution)	0920300M2
	pZerve™ (No DMSO, FBS, ACF solution)	0920303M2

Relevant Products

Stem cell isolation, expansion, maintenance, and banking involve multiple critical steps to ensure success. MP Biomedicals offers a wide range of products to support every phase of this process.

Category	Name	Cat No.
Basal Media	DMEM	0910331
	1X DMEM	091233354
	1X DMEM w/ HEPES, w/o glutamine, bicarbonate	0912334
	1X DMEM w/o glutamine	0912332
	1X DMEM w/o glutamine, phenol red	091642754
	MEM-α w/o deoxyribosides, ribosides, sodium bicarbonate	09103112
	1X RPMI 1640 Medium	0912603
	1X RPMI 1640 Medium w/ HEPES w/o glutamine	091260454
	1X RPMI 1640 Medium w/o glutamine	091260254
	1X RPMI 1640 Medium w/o glutamine, glucose	091646854
	1X RPMI 1640 Medium w/o glutamine, phenol red	091646754
	RPMI 1640 Medium	0910601
Enzymatic Dissociation	Collagenase type II, >125 U/mg solid	02100502
	Collagenase type III, >100 U/mg	02150704
	Collagenase, type I, >125 U/mg	02195109
	Collagenase type IV, >160 U/mg	02195110
	Hyaluronidase from steotomyces hyalurolyticus, ~2000 U/mg	02151270
	Papain, ≥10 units/mg protein	02100921
	Accutase®, Cell Detachment Solution	091000449
	1X Trypsin-EDTA solution (0.05% (w/v) Trypsin (1:250) and 0.02% (w/v) EDTA)	091689149
Buffers	1X Trypsin-EDTA solution	091689649
	1X Hank's Balanced Salt Solution, modified	091810054
	1X Hank's Balanced Salt Solution (modified) w/o phenol red	091810254
	1X Hank's Balanced Salts (modified), w/o Mg and Ca	091810454
	HEPES buffer, 1M	091688449
	HEPES buffer, cell culture grade	091588413
	HEPES, sodium salt, cell culture reagent, ≥98.0%	02194550
	Phosphate Buffered Saline (PBS) (1X) Dulbecco's formula w/o Ca, Mg	0918604
	Phosphate Buffered Saline (PBS), Dulbecco's formula, powder, w/o Ca, Mg	0917604