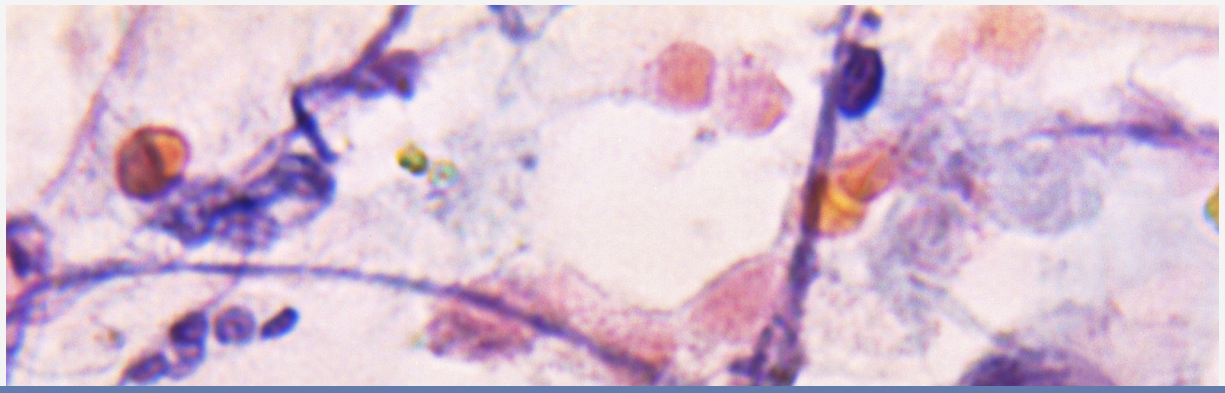
PL BioScience

INNOVATING CELL CULTURE



CELL DATA BASE

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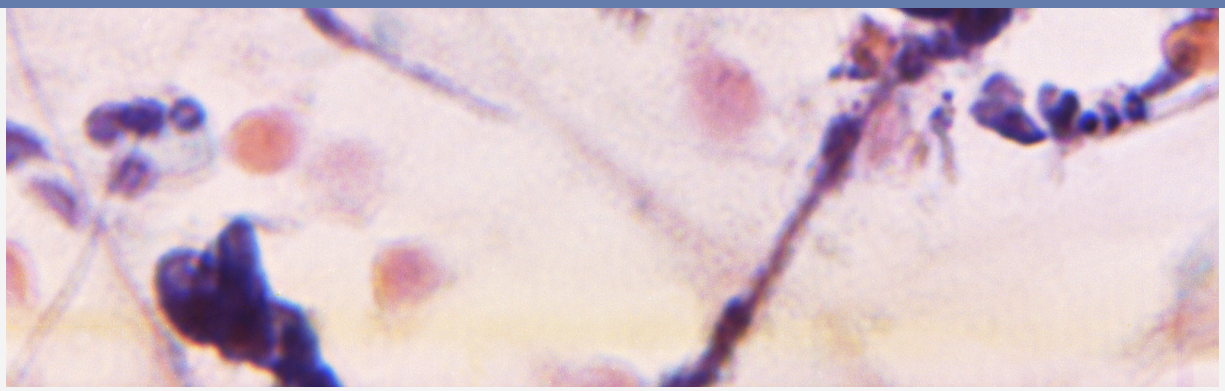


CELL EXPANSION

Cell culture is an essential procedure in life sciences where all cell types need to be maintained under lab conditions.

Human Platelet Lysate (HPL) resembles the natural cell environment for optimal growth results.

This Cell Database is based on customer feedback, publications and internal tests and investigations – summarizing cells which have shown favourable properties grown in Human Platelet Lysate.

01 **HUMAN PRIMARY CELLS**

List of human primary cells that showed favourable properties with HPL.

02 **HUMAN CELLS LINES**

List of human cell lines that showed favourable properties with HPL.

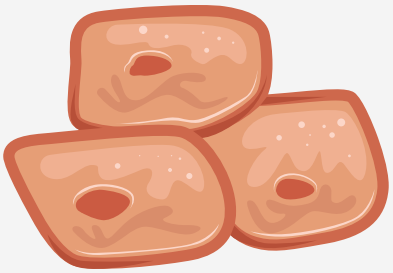
03 **ANIMAL PRIMARY CELLS**

List of animal primary cells that showed favourable properties with HPL.

04 **ANIMAL CELL LINES**

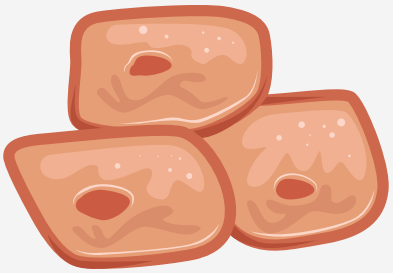
List of animal cell lines that showed favourable properties with HPL.

HUMAN PRIMARY CELLS



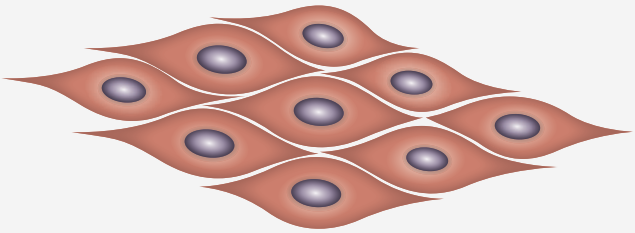
Cell Type	Short Form
Adipose-derived Stem Cells	ADSC
Chondrocytes	
Corneal keratocytes	
Dental Follicular Cells	DFSC
Fibroblasts	
Dermal Fibroblasts	
Foreskin Fibroblasts	
Gamma-Delta-T-Cells	
Head and Neck Squamous Cell Carcinoma Cells	PCI 13
Hematopoietic Stem Cells	HSCs
Umbilical vein endothelial cells	HUVEC
Neural crest cells	
Lymphocytes from Blood	
Human Dental Pulp Stem cells	DPSC
Peridontal Ligaments Cells	PDL
Neural crest cells	
Stem Cells from Sweat Glands	SGSCs

HUMAN PRIMARY CELLS



Cell Type	Short Form
Corneal stromal keratocytes	CSK
Human cardiac fibroblasts	
Primary human osteoblasts	
Primary endothelial cells (isolated from skin)	

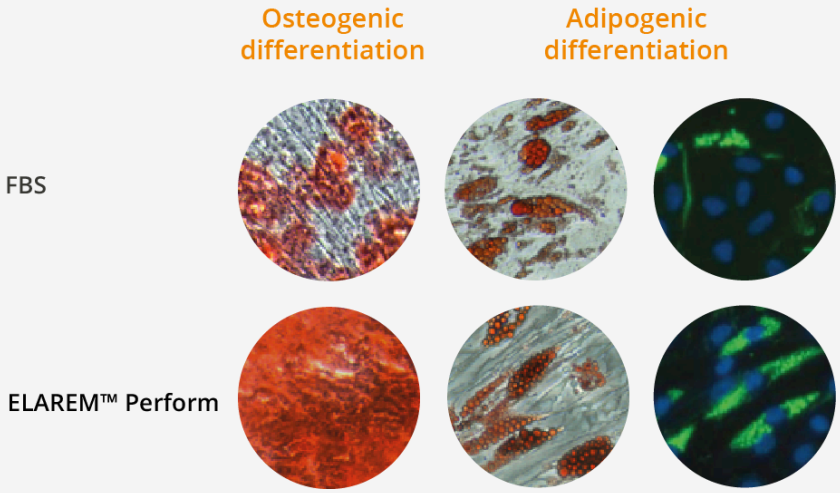
HUMAN PRIMARY CELLS



Mesenchymal Stromal Cells (MSCs)

We dedicate a full page to these special cells, also known as Mesenchymal Stem Cells. Due to their multipotency, they are able to differentiate into a variety of cell types. This characteristic makes them interesting cells used in cell culture research and therapy.

Cell Type	Short Form
Mesenchymal Stem Cells from adipose tissue	MSC-AT
Mesenchymal Stem Cells from bone marrow	MSC-BM
Mesenchymal Stem Cells from MNCs	MSC-MNC
Mesenchymal Stem Cells from umbilical cord	MSC-UC
Mesenchymal Stem Cells differentiated from iPSCs	iPS-MSCs



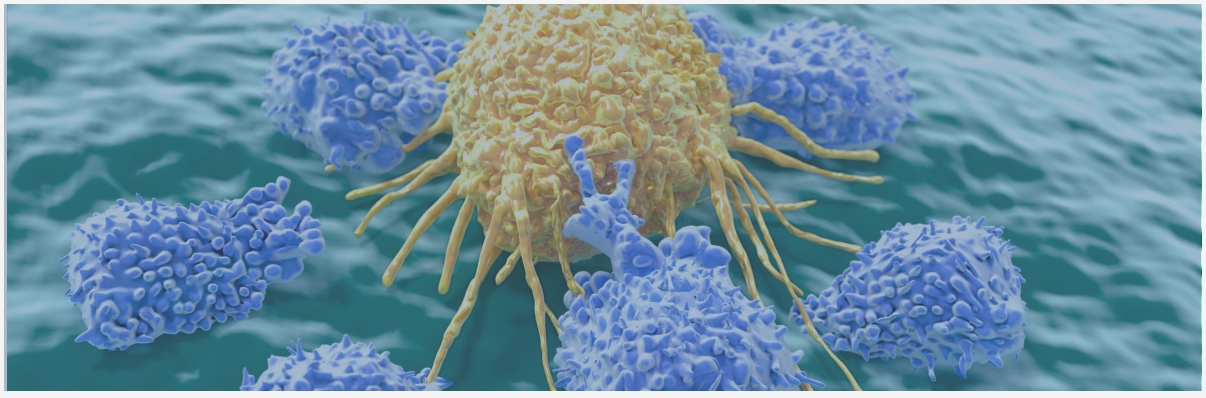
Isolation of Mesenchymal Stem Cells from Adipose Tissue with 10% ELAREM™ Perform or 10% FBS resulted in MSCs of similar cellular morphology. Osteogenic and adipogenic differentiation of MSCs was higher with ELAREM™ Perform than with FBS.

HUMAN PRIMARY CELLS

Immune Cells

Immune cells and especially ex vivo expanded and modified T-Lymphocytes are of high interest to the immunotherapy field. The aim of this type of therapy is to stimulate the capacity of immune cells to fight against cancer cells. Human Platelet Lysate shows to be a valuable growth medium for culturing immune cells. It aids the ex vivo expansion of cells such as macrophages, monocytes, dendritic cells, T-Lymphocytes and CAR-T cells. (1, 2)

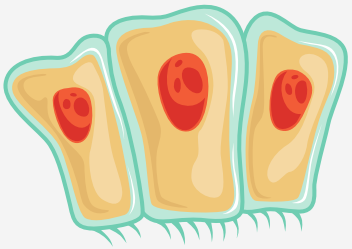
Cell Type	Short Form
Natural Killer Cells	NK
Lymphocytes (T-Cells, B-Cells)	
Dendritic Cells	DC
Macrophages/Monocytes	



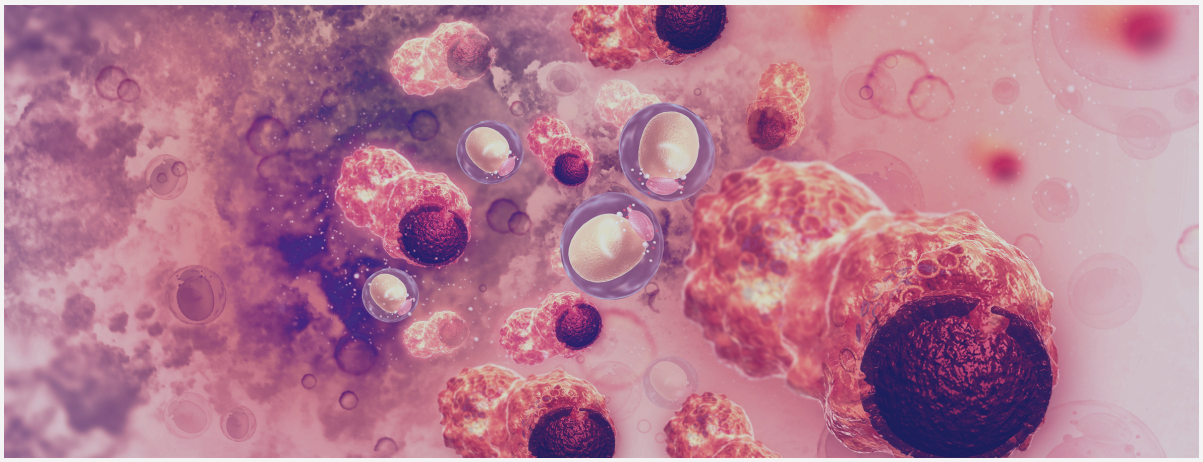
(1) *Lassina Barro, Pierre-Alain Burnouf, Ming-Li Chou, Ouada Nebie, Yu-Wen Wu, Ming-Sheng Chen, Miryana Radosevic, Folke Knutson, Thierry Burnouf (2020). Human platelet lysates for human cell propagation. Platelets. DOI: 10.1080/09537104.2020.1849602.*

(2) *Urban Švajger (2017). Human platelet lysate is a successful alternative serum supplement for propagation of monocyte-derived dendritic cells. Department of Therapeutic Services, Blood Transfusion Centre of Slovenia, Ljubljana, Slovenia. Received 22 November 2016, Accepted 12 January 2017, Available online 16 February 2017, Version of Record 6 March 2017. DOI: 10.1016/j.jcyt.2017.01.005.*

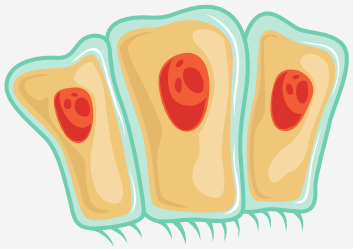
HUMAN CELL LINES



Cell Type	Short Form
Breast Carcinoma	BT-20
Breast Carcinoma	HBL100
Cervical cancer cells	HeLa
Colon cancer cell lines	LS 180
Epithelial colorectal adenocarcinoma cells	Caco-2
Lung Large-cell carcinoma	LCC
Melanoma	
Osteo Sarcoma	HOS(TE85)
Human osteosarcoma cell line	U-2 OS
Human urinary bladder carcinoma cell line	5637
Human lung adenocarcinoma cell line	HGC-27



HUMAN CELL LINES

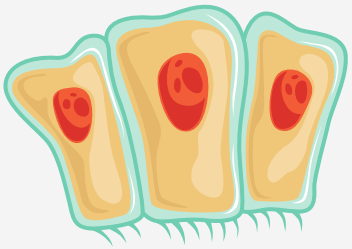


Cell Type	Short Form
Chordoma cell lines	
Dermal Fibroblasts	HFFF2
Dermal keratinocytes	NCTC 2544
Epithelia mammary gland; breast/duct	ZR-75-1
Human embryonal lung fibroblast	MRC-5
Human Embryonic Kidney 293 cells	HEK-293
Human Gingiva Fibroblasts	HGF-1
Human umbilical vein endothelial cells	HUVEC
Keratinocyte cell line from adult human skin	HaCaT
Hematopoietic Stem Cells	HSCs
Lymphocytes (immortalized)	
MSCs containing catalytic subunit of telomerase	hMSC-TERT
Retinal pigmented epithelium	ARPE-19
Human epithelial type 2	HEp-2
Human colorectal adenocarcinoma cell line	HROC24
Pancreas adenocarcinoma cell line	Panc-1
Human renal clear cell carcinoma cell line	RCC-ER

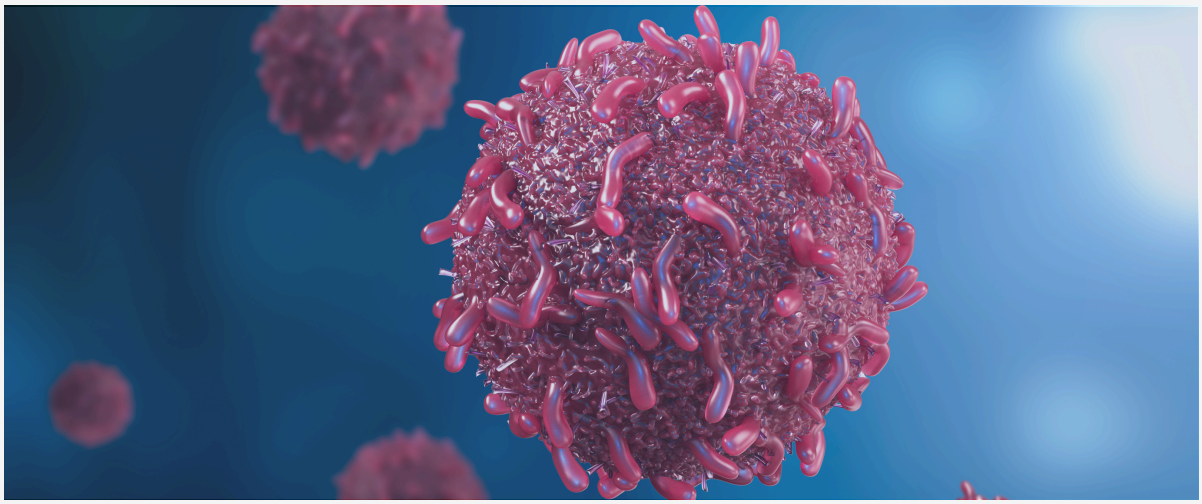
HUMAN CELL LINES

Cell Type	Short Form
Lymphoblastic leukemia cell line	NALM-6
Colon carcinom	HT29MTX
Human Lung adenocarcinoma cell line	A549
Lung carcinoma cell line	H1299
Epithelial cell, isolated from the lung, adenocarcinoma	HCC-827
Liver carcinoma (Hepatocytes)	HepG2
Ovarian adenocarcinoma cell line	SKOV3
Hypopharyngeal tumor cell line	FaDu
Mammary gland/breast; derived from metastatic site	MDA-MB231

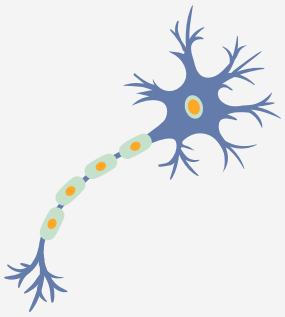
HUMAN CELL LINES



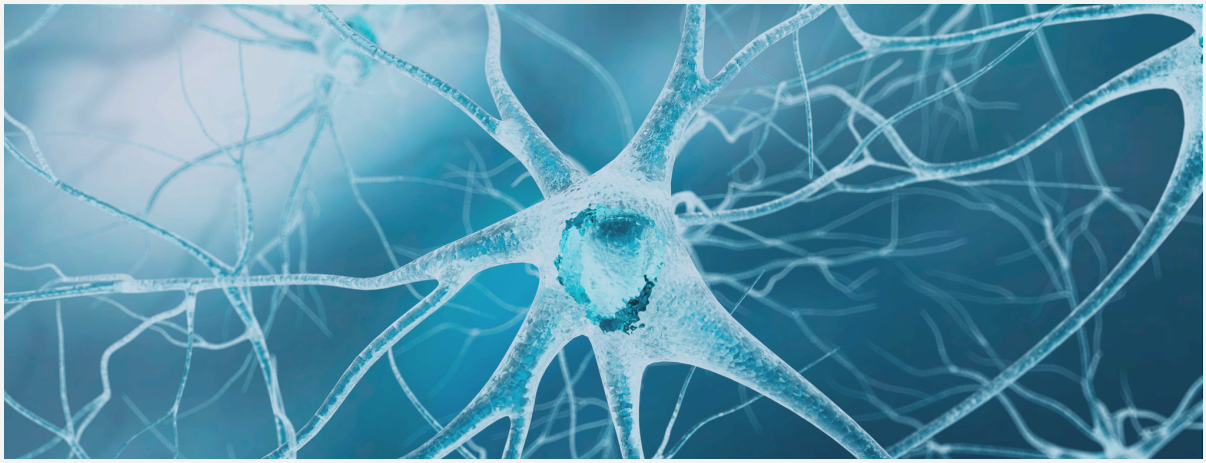
Cell Type	Short Form
Human continous tumor	A-549
Human continous tumor	Caco-2
Human continous tumor	MCF-7
Human continous tumor	U-251 MG
Human leukemia cells	HL-60
Human leukemia cells	Jurkat
Human leukemia cells	KG-1
Myelogenous leukemia	K562
Human myeloid leukemia cell line	Kasumi-1
Human acute monocytic leukemia cell line	THP-1



ANIMAL PRIMARY CELLS



Cell Type	Short Form
Bovine Corneal Endothelial Cells	CEC
Murine Astrocytes	
Murine Mesenchymal Stem Cells	MSC
Rat Mesenchymal Stem Cells	MSC
Murine Mikroglia	
Spiral ganglions from Sprague-Dawley rats	SGC

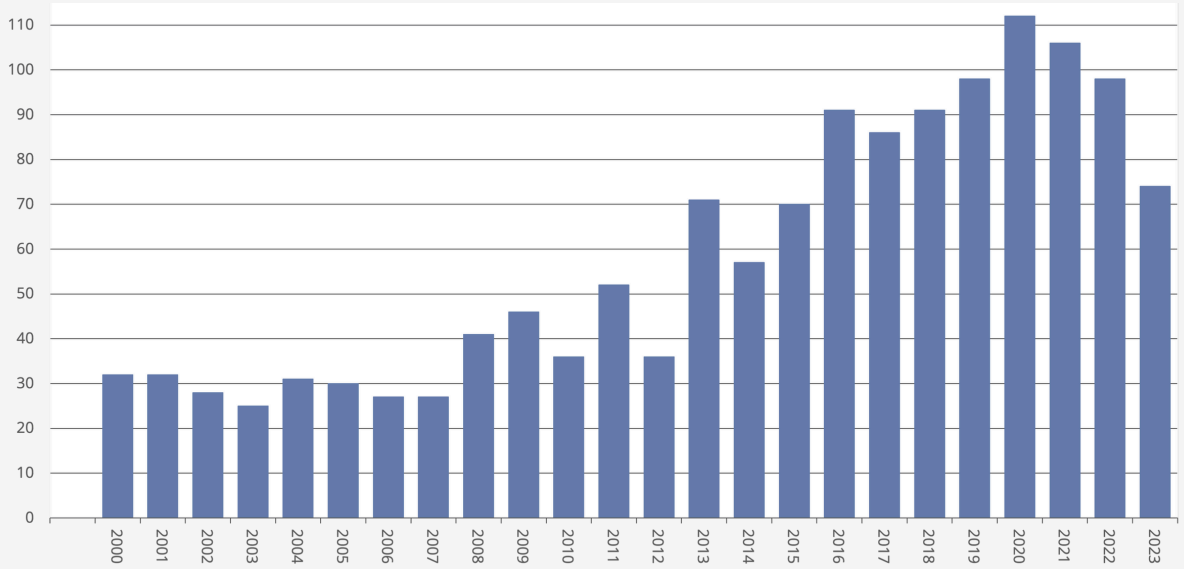


ANIMAL CELL LINES

Cell Type	Short Form
Adrenal gland	PC-12
African Green Monkey Fibroblast	COS-7
Chinese Hamster Ovary epithelial	CHO
Kidney (African Green Monkey)	Vero
Mouse adenocarcinoma cell line	RAG
Mouse fibroblast cell line	L929
Mouse mammary tumor 060562	MMT 060562
Mouse Mikoglia	BV-2
Mouse myeloma cell line	Sp2O-Ag14
Neuroblastoma cell line	Neuro-2a
Statens Seruminstitut Rabbit Cornea	SIRC
Testis from rat	R2C

GROWING INTEREST IN HPL

Number of publications on HPL over the years

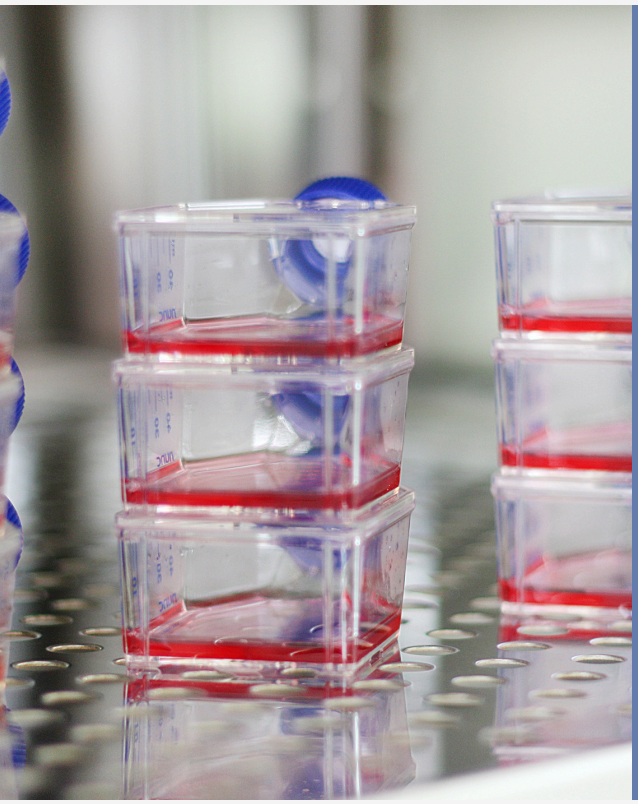


Source: PubMed.

Interest in Human Platelet Lysate emerges

The number of Human Platelet Lysate publications has been increasing steadily for years. This also results in a growing number of tested cells of different origins.

PL BioScience contributes to this trend by being part of several research projects as well as performing own laboratory tests.



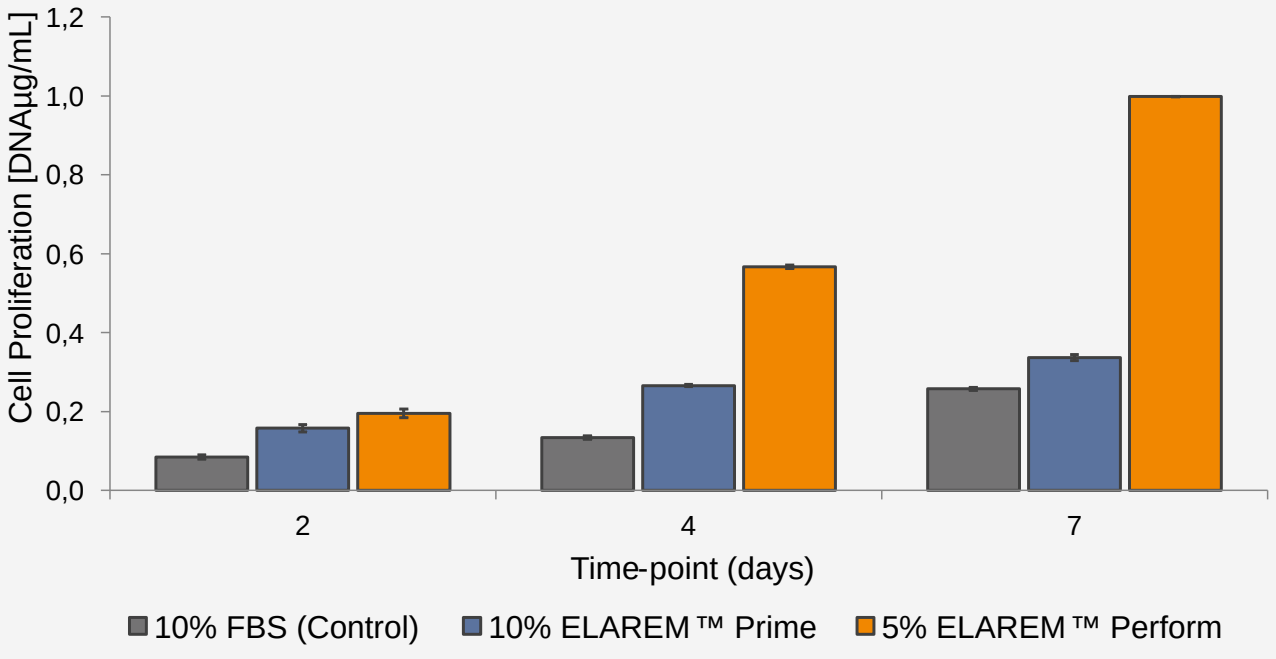
PERFORMANCE

Human Platelet Lysate contains abundant growth factors and cytokines derived from human platelets. Those factors have been shown to stimulate cellular proliferation and maintain phenotype and differentiation potential of various cells.

Final concentration of ELAREM™ Human Platelet Lysate in cell culture medium can vary depending on cell type and experimental conditions. It is recommended to determine the optimal concentration – between 1% and 10% (v/v) – for the cells of interest.

"HPL can support the growth and proliferation of cells in culture, as platelets are known to play a vital role in tissue renewal and wound healing." (3)

Cell growth performance of hASC with ELAREM™ Prime, Perform & FBS



(3) Human Platelet Lysate efficiency, stability, and optimal heparin concentration required in culture of mammalian cells. Mohamed et al. (2020), The Korean Journal of Hematology. Blood Res 2020; 55(1): 35-43, Internet: https://www.bloodresearch.or.kr/journal/view.html?doi=10.5045/br.2020.55.1.35.

OUR COMPANY'S VISION FOR THIS PROJECT

We at PL BioScience do our best to enhance the advances in regenerative medicine with our animal-free cell culture tools. As a result, we produce Human Platelet Lysates which bear the potential to raise both cellular research and therapy to the next level.

Our aim and our vision: The future of cell culture supplements is animal-free.

To achieve this aim,

- We raise awareness of alternatives to animal sera
- Share scientific knowledge about Human Platelet Lysate
- Collect data about cells, cell lines and innovations in cell culture.

You can help us to achieve this aim! Share your experiences and knowledge about cells and HPL with us.

MEET OUR SUPPORT TEAM

support@pl-bioscience.com

DR. SILKE ISENHARDT

Field Application Scientist

As a biologist, Silke is our expert for cells and has deep knowledge about Human Platelet Lysate. She is your contact person when you have a question about our products and their handling.

PHILIPP SCHMIDT

Technical Account Manager

A sales expert with long experience in B2B sales and customer support.
Philipp is your contact person when you have a question about products, prices or contracts.

CÉCILIA MESA

Sales Manager

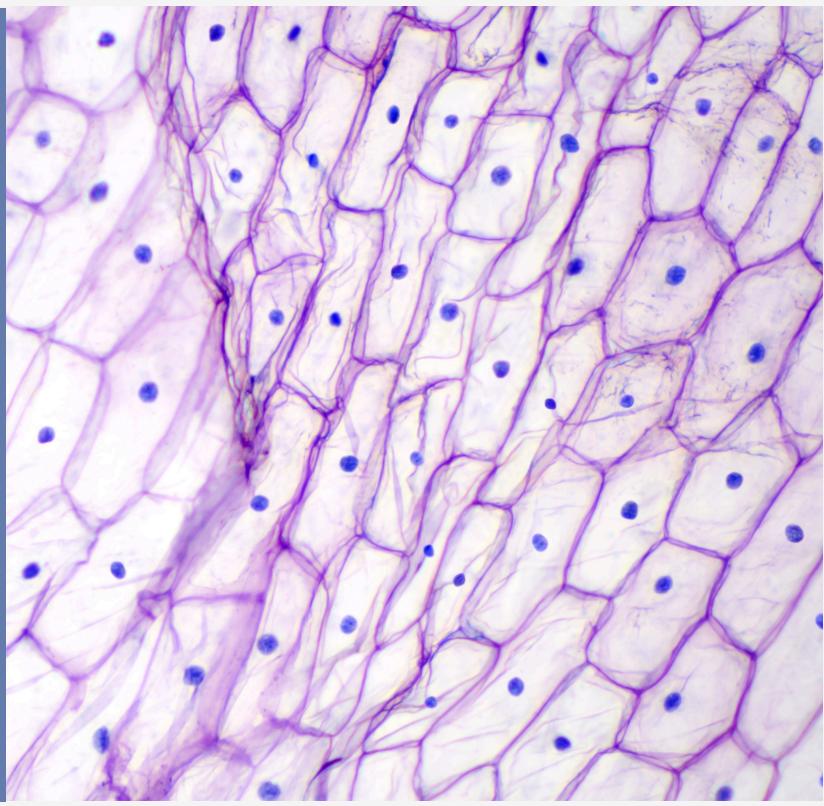
A sales expert with long experience in Life Science sales and customer support.
Cécilia is your contact person when you have a question about products, prices and handling.

SOURCES

This Cell Database is based on customer feedback, publications and internal tests and investigations.

We constantly strive to expand our knowledge and by this, our cell database.

If you plan a project with cells that are not included in this list, please contact us.



OWN PUBLICATIONS

- Epigenetic Biomarker to Support Classification into Pluripotent and Non-Pluripotent Cells.
  Lenz M., Goetzke R., Schenk A., Schubert C., Veeck J., Hemeda H., Koschmieder S., Zenke M., Schuppert A. & Wagner W. (2015). Scientific Reports; 5:8973.

- Evaluation of human platelet lysate versus fetal bovine serum for culture of mesenchymal stromal cells.
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  Frobel F., Hemeda H., Lenz M., Abagnale G., Joussen S., Denecke B., Šarić T., Zenke M. & Wagner W. (2014). Stem Cell Reports; Vol. 3; 414–422.

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OWN PUBLICATIONS

Anticoagulant concentration is critical for cell culture with human platelet lysate.
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