Sartorius MSC Functional and Phenotypic Characterization Solution

Data Sheet Collection

SARTORIUS

Table of Contents

SARTORIUS

Simplifying Progress

Introducing the Incucyte® SX5 Live-Cell Analysis System

More Colors. More Insights. More Possibilities.

Leading the Way With Living Cells

See more information in every sample and explore more applications. Leverage up to 5 different fluorescence channels, up to 3 at a time, for long term timelapse experiments.

Protect Your Cells

Patent-pending 3-color optical module includes a long wavelength, low phototoxicity Near IR channel and reagents designed for long term live-cell experiments.

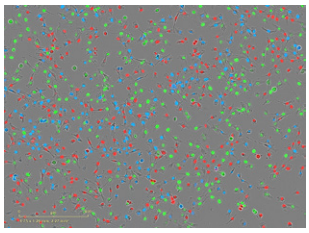
Go Where Your Research Takes You

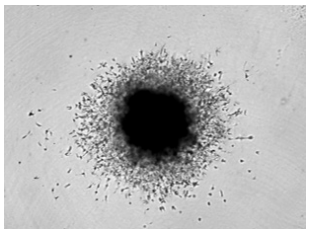
Study complex immune-tumor cell interactions, synaptic activity in neuronal co-cultures, metabolism in cancer cells, and much more—with a single platform.

Improve Productivity

Enjoy walk-away convenience as images are automatically acquired and analyzed in microplate format, up to six in parallel.

The Incucyte SX5 Live-Cell Analysis System offers more channels, more reagents and more purpose-built software for more applications—allowing you to derive deeper, physiologically relevant information about your cells. Never miss powerful insights again, with the Incucyte SX5 Live-Cell Analysis System, Software, Reagents, and Consumables.





Dedicated to Living Cells

- Up to 5 different fluorescence channel options
- Multiplex HD Phase with up to 3 fluorescence channels at a time (Green/Orange/Near IR)
- 4x, 10X, and 20X lenses on an automated turret
- Purpose-built software modules, reagents and consumables for turnkey applications

Support for Multiple Users

- Support for 3 interchangeable vessel trays and over 600 vessels, up to 6 microplates in parallel
- Remote, networked access with unlimited, free licenses

See What You Can Do With the Incucyte Live-Cell Analysis System!

Cell Health & Proliferation
Proliferation & Cell Counting
Cell Cycle
Apoptosis
Cytotoxicity
Viability
Mitochondrial Membrane Potential NEW!
ATP Metabolism NEW!

Cell Function
Immune Cell Killing
Antibody Internalization
Immunocytochemistry
Phagocytosis
Neurite Dynamics
Neuronal Activity
Angiogenesis

3D Cell Models
Spheroid Growth & Viability
Spheroid Invasion

Cell Movement & Morphology
Chemotaxis Migration & Invasion
Scratch Wound Migration & Invasion

Learn more at
www.sartorius.com/incucyte

E-Mail orders.US07@sartorius.com

North America: +1 734 769 1600, ext. 3
Europe: +44 7515 947101
APAC: +81 3 5826 4795

See how the Incucyte is driving research forward at **www.essenbio.com/publications**

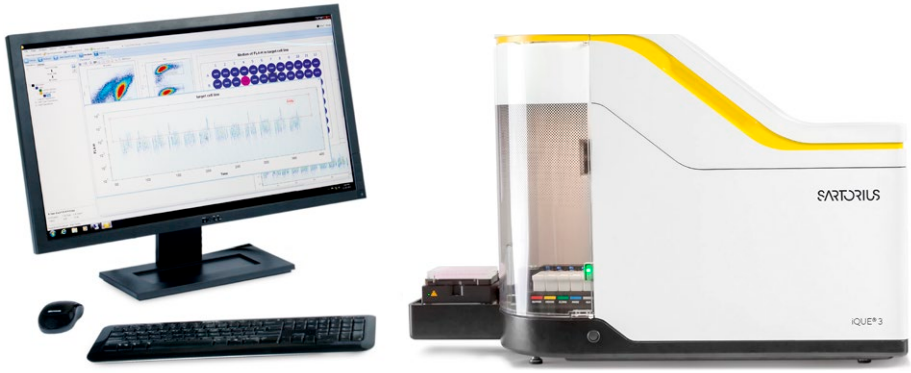
SARTORIUS

Technical Specifications

iQue® 3

Faster, Smarter, Flow Cytometry

Advanced High Throughput Flow Cytometry Solution Speeds Up Your Entire Workflow



The iQue® 3 Platform is the most advanced flow cytometry platform—with a focus on speed from setup, to acquisition and analysis. It combines a patented sampling method, which allows for the fastest sample acquisition in the industry. It has the ability to handle 96, 384, or 1536-well plates, and enables continuous plate loading through connection with any automation system. The Enhanced Rinse Station (ERS) provides continuous monitoring of liquid levels to ensure sufficient volumes prior to each run.

When used with the pre-configured iQue® reagent kits, samples can be analyzed instantly through the use of customizable templates following acquisition.

The included iQue Forecyt® Software enables dynamic data visualizations with an ease of use that allows all users to identify samples of interest without having to export to multiple software packages.

The iQue® Advantage

Speed

- Faster plate processing, minutes, not hours
- Mix and read samples
- Faster time to results

Miniaturization

- Consumes less reagents
- Conserves precious cells
- Saves money

Content

- Rich, multiplexed, per-cell content
- Cell and beads together
- Secreted protein analysis

Usability

- Automated workflow
- Validated reagents
- Easiest software you will ever love

Insight

- Link information
- Run scenarios
- Create knowledge
- Make decisions

iQue® 3 Platform

The iQue® 3 Platform is an integrated instrument, software and reagent system that enables rapid, high content, multiplexed analysis of cells and beads in suspension. Our unique, software-assisted automation and experiment-based analyses deliver the deep insight needed to answer complex biological questions.

The iQue® 3 BR (Blue-Red laser configuration) is a phenotypic screening and profiling workhorse that is ideal for applications that require up to 6-color detection, including antibody and biologics discovery, cell health assessment, secreted protein analysis using iQue® Qbead-based assays, and many more applications. Our platform delivers the iQue Forecyt® Software Workflow Advantage: a single data management workflow from input to output, which means you work faster and work smarter—not harder.

Content is king with the iQue® 3 VBR and VYB (Violet-Blue-Red and Violet-Yellow-Blue laser configurations). Three-laser systems offer up to 13-color detection and are ideal for functional and phenotypic applications that demand more choice and flexibility in experimental design. These systems combine high performance multi-color analysis with the iQue Forecyt® Software Workflow Advantage making them hands-down the choice of scientists in immune-based drug discovery, immuno-oncology, and cell therapy applications.

The iQue® 3 HD (Blue-Red laser configuration) provides the ultimate assay miniaturization and is the only high content, per-cell, 1536-well capable suspension screener available.

iQue® 3 Technical Specifications

	iQue® 3 Configuration	Blue and Red		Violet, Blue and Red			Violet, Yellow and Blue		
Detectors	**Lasers**	**488 nm**	**640 nm**	**405 nm**	**488 nm**	**640 nm**	**405 nm**	**561 nm**	**488 nm**
	445/45 nm			■			■		
	530/30 nm	■		■	■		■		■
	572/28 nm	■		■	■				
	586/20 nm						■	■	
	615/24 nm			■	■				
	615/20 nm						■	■	■
	660/20 nm						■	■	■
	675/30 nm	■	■	■	■	■			
	780/60 nm	■	■	■	■	■	■	■	
	Forward light scatter (relative size)	■			■			■	
	Side light scatter (relative granularity)	■			■			■	
Optical	Fluorescence sensitivity	FITC < 75 MESF; PE < 50 MESF; APC < 20 MESF							
	Minimum particle size detection	0.5 µm							
	Cell detection rate	Up to 35,000/second							
	Dynamic range of detection*	> 7 decades							
	* This wide dynamic range and a Zoom function permit operation of the system without user adjustments of the voltage or gain of the detectors.								
Sampling	Plate compatibility	96-well, 384-well or 384-well, 1536-well (iQue® 3 HD BR)							
	Sampling	Continuous air-gap delimited							
	Minimum assay volume requirements	10 µL							
	Minimum sample aspiration	1 µL							
	Minimum plate sampling time*	< 5 minutes | 96 wells		< 20 minutes | 384 wells					
	Carryover	< 2% for typical no-wash assays. Actual amounts are cell and assay dependent and are easily managed by including interwell rinses to reduce carryover to < 0.1%							
	Automated plate shaker	Up to 3,000 rpm (Up to 5000 rpm on iQue® 3 HD BR)							
	Features	▪ Foil-sealed plate processing ▪ Volumetric cell counting (< 10% CV)							
	* The time required for sampling plates is both sample type and experiment dependent. A range of well-sampling times can be designated from 0.5 seconds–minutes.								
Enhanced Rinse Station	Features	▪ Reduces evaporation ▪ Monitors fluid levels			▪ Automated QC bead vortexing				
iQue Forecyt® Software	Features	▪ Auto compensation ▪ Real-time whole-plate data analysis ▪ Dynamic linked gating ▪ Interactive heat maps, profile maps			▪ Cross plate analysis ▪ Export files in FCS, CSV or iQue Forecyt® formats ▪ Customizable PDF data report ▪ iQue Forecyt® Enterprise Edition compatible				
Operational	Computer workstation, Windows compatible	Xeon processor, dual 256 GB SSD (RAID 0), 16 GB RAM, 27" monitor 2560 x 1400							
	Weight (less computer)	205 lbs, 93 kg							
	Dimensions	39" W x 25" D x 26" H | 99 cm W x 63 cm D x 66 cm H							
	Power requirements	100 | 115 | 230 VAC, 50-60 Hz							
	Environment requirements	Temperature: 15–32° C (59–90° F), Relative humidity: 80% maximum							
	Features	▪ CE labeled ▪ 21 CFR logging option compatible			▪ Robotic integration option compatible ▪ iQue® Qmax refill module option compatible				

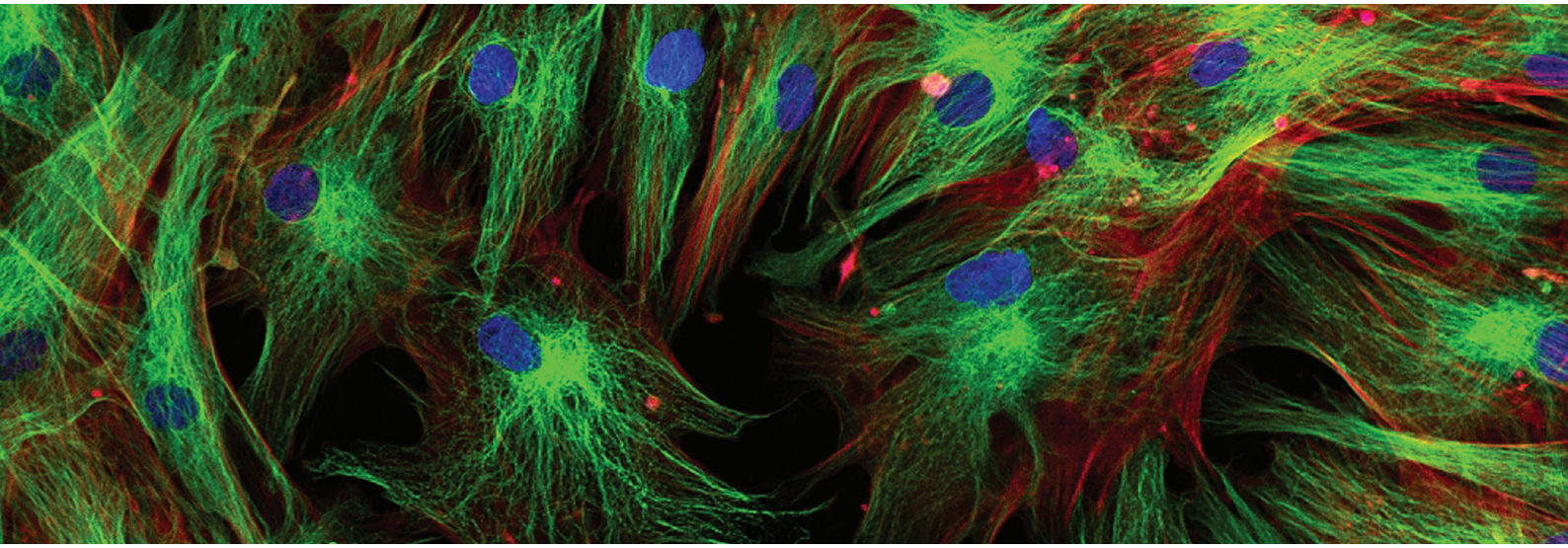
iQue® technology is protected by the following patents and other patents pending:
6,890,487, 6,878,556, 7,368,084, 7,842,244, 8,021,872, 8,268,571, 8,637,261, 8,823,943, 9,012,235, D,722,515

Learn why iQue® is the choice of leaders in Immuno-Oncology, Antibody Discovery and Immune Target Screening at: **www.sartorius.com/ique**

BI
Biological Industries
Culture of Excellence

NutriStem® MSC Culture System

A complete xeno-free, serum-free system for the growth and expansion of hMSCs



- **Defined, xeno-free, serum-free medium**
- **Superior proliferation of hMSCs**
- **Supports long-term growth and differentiation potential**
- **FDA Drug Master File**

Redefining stem cell excellence and advancing clinical applications

Defined, serum-free, xeno-free reagents are essential tools for all human mesenchymal stem cell (hMSC) research having potential clinical applications. The NutriStem® MSC Culture System includes defined reagents ideal for translational research use. hMSCs cultured in serum-free, xeno-free **NutriStem® MSC XF Medium** show superior proliferation and self-renewal potential in comparison to serum-containing media and other serum-free media. In addition, hMSCs maintain their proper fibroblast-like cell morphology, tri-lineage differentiation potential, and demonstrate normal hMSC marker profiles and karyotypic stability over long-term culture.

NutriStem® MSC XF Medium is designed for optimal growth and expansion of hMSCs derived from a variety of sources, including bone marrow (BM-hMSC), adipose tissue (AT-hMSC), Wharton's jelly (WJ-hMSC), placental tissue (PT-MSC), and umbilical cord matrix (UC-hMSC).

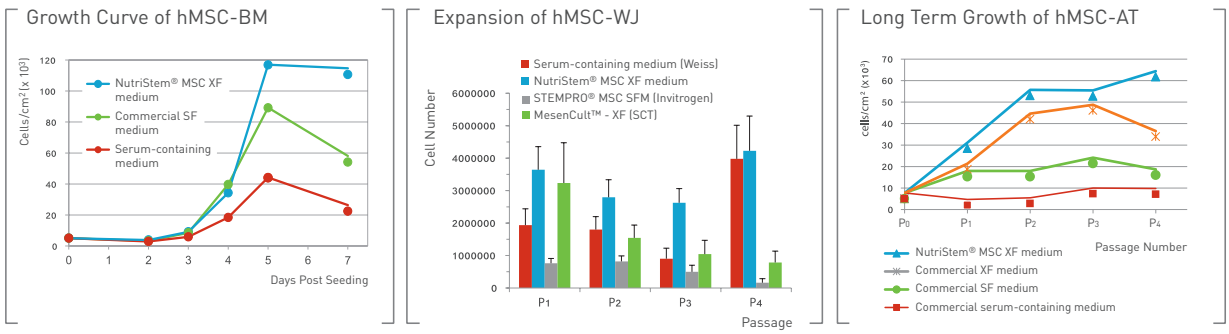


Figure 1: NutriStem® MSC XF Medium promotes superior proliferation and expansion of hMSCs over time as compared to other serum-free and serum-containing media.

MSC Attachment Solutions

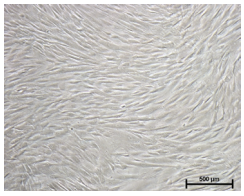
- Xeno-free, purified human fibronectin/human fibrinogen
- Optimized for serum-free cultures
- For hMSC proliferation and differentiation

MSC Dissociation Solutions

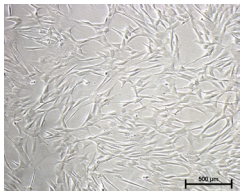
- Ready-to-use, defined
- Recombinant trypsin solutions

NutriFreez™ D10 Cryopreservation Solution

- Chemically defined, animal component-free, protein-free
- Excellent cell attachment and viability



Recombinant Trypsin Solution



Crude Trypsin-EDTA Solution

Figure 2: MSC Dissociation Solutions. Recovery of BM-hMSC after dissociation with either Recombinant Trypsin Solution or Recombinant Trypsin-EDTA Solution and re-seeding on plates pre-coated with the MSC Attachment Solution and cultured in NutriStem® MSC XF Medium. Images were taken on Day 5 post-dissociation (100X).

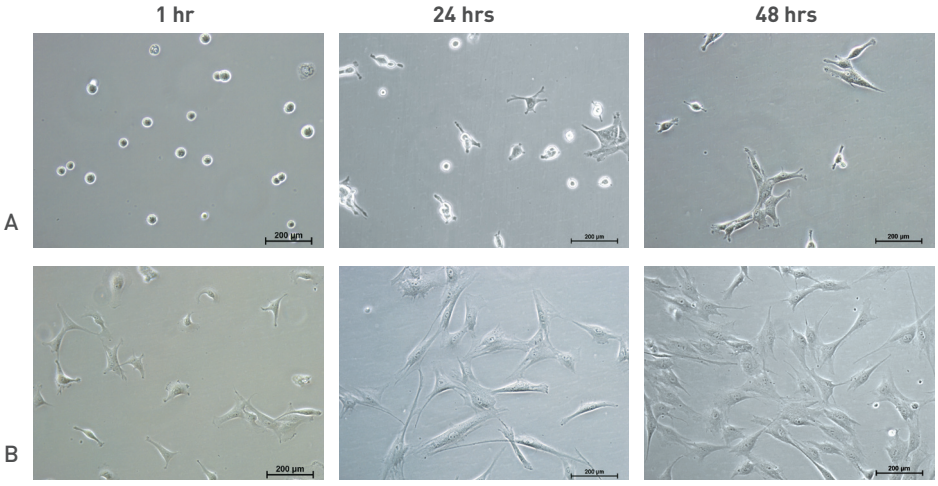


Figure 4: MSC Attachment Solutions. The use of MSC Attachment Solution greatly enhances BM-hMSC attachment and growth in culture. Cells in panel A images were cultured without MSC Attachment Solution. Cells in panel B were cultured with MSC Attachment Solution. Images were taken at the indicated time points post-seeding (200X).

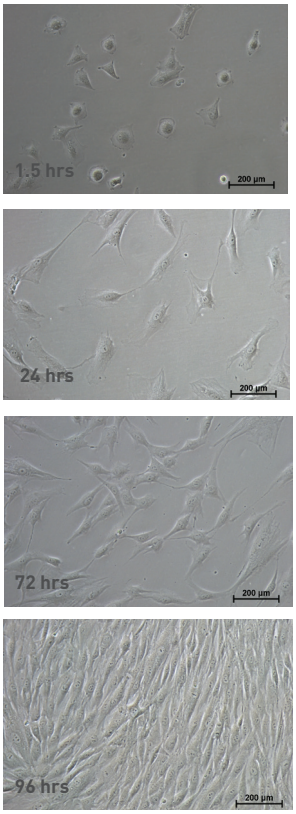


Figure 3: NutriFreez™ D10 Cryopreservation Medium. Images show the recovery of BM-hMSC after thawing. Cells were frozen using NutriFreez™ D10 Cryopreservation Medium, thawed, and re-seeded in NutriStem® MSC Medium. Images were taken at the indicated time points post-thawing (200X).

Ordering Information

Cat. #	Product
05-200-1	MSC NutriStem® XF Basal Medium
05-201-1	MSC NutriStem® XF Supplement Mix
05-760-1	NutriCoat™ Attachment Solution
05-752-1	MSC Attachment Solution
05-713-1	NutriFreez™ D10 Cryopreservation Medium
03-078-1	Recombinant Trypsin Solution
03-079-1	Recombinant Trypsin-EDTA Solution
PLTGOLD100R	PLTGold® Human Platelet Lysate (Research-grade)
PLTGOLD100GMP	PLTGold® Human Platelet Lysate (Clinical-grade)
PLTGOLD100GMP-PI	PLTGold® Human Platelet Lysate (Pathogen Inactivated)
PLTMAX100R	PLTMax® Human Platelet Lysate (Research-grade)
PLTMAX100GMP	PLTMax® Human Platelet Lysate (Clinical-grade)

ALSO AVAILABLE

MSCgo™ Differentiation Media

A unique line of complete, serum-free, and xeno-free media for efficient and reproducible differentiation of hMSCs.

- MSCgo™ Osteogenic XF Medium
- MSCgo™ Rapid Osteogenic XF Medium
- MSCgo™ Chondrogenic XF Kit
- MSCgo™ Adipogenic XF Kit

How to Order

Biological Industries USA | T. 860.316.2702 F. 860.269.0596 | orders-usa@bioind.com

Biological Industries | T. 972.4.9960595 F. 972.4.9960631 | info@bioind.com

CE ISO 9001 2015 ISO 13485 2016 cGMP Manufacturing Facility

Culture of Excellence

www.bioind.com

PLTGold® Product Insert

About PLTGold®

PLTGold® is a non-xenogeneic, animal serum-free product derived from human platelets. PLTGold® is used as a manufacturing component in the generation of adult stems cells. A Drug Master File for PLTGold® is registered with the FDA and is cross-referenceable. Contact us for more information on the DMF.

Product	Catalog Number	Size
PLTGold® Research Grade	PLTGold27R	27mL
	PLTGold100R	100mL
	PLTGold500R	500mL
PLTGold® Clinical Grade (GMP)	PLTGold27GMP	27mL
	PLTGold100GMP	100mL
	PLTGold500GMP	500mL

Safety Information

All PLTGold® donors have been tested for infectious diseases; however, universal precautions for handling and disposal of biological products should be used when working with PLTGold®.

Using PLTGold®

- Thaw at 37°C or 4°C.
- It is not recommended to expose PLTGold® to repeated temperature changes that could affect the integrity of its components. For that reason, we recommend thawing the product and preparing aliquots as soon as it is received.
- Aliquots can be stored at -20°C or colder. Storage at 4°C is recommended for periods no longer than 2 weeks.
- Complete media can be prepared, aliquoted and stored at -80ºC for up to 9 months. Do not store complete media at 4ºC for longer than 2 weeks.
- Filtration of PLTGold® or complete media containing PLTGold® is NOT recommended.

Culture Conditions Using PLTGold®

- Cell seeding should be performed following the general guidelines for the specific cell type. For Mesenchymal Stem Cells (MSCs), cells are typically plated at approximately $2x10^3$ – $5x10^3$ cells per cm^2.
- For MSCs, PLTGold® can be used at 5% vol/vol in a typical cell culture medium such as DMEM or α-MEM. If the basic media doesn't contain Glutamine, a source of L-Glutamine will need to be added to the media at a final concentration of 2mM. For other types of cells, the concentration of PLTGold® will need to be titrated according to the application (a titration from 2% vol/vol to 10% vol/vol is recommended to establish the percentage of PLTGold® needed for the cell type to use).
- Do not allow primary MSC confluence to exceed 70-80%.

Origin

- PLTGold® was developed to eliminate the need for heparin in hPL. It is an unfractionated product derived from our original hPL, PLTMax® that does not contain or require the addition of heparin. PLTGold® remains clot free and with similar performance to PLTMax®.

References

- Crespo-Diaz R, Behfar A, Butler GW, et al. **Platelet lysate consisting of a natural repair proteome supports human mesenchymal stem cell proliferation and chromosomal stability.** *Cell Transplant*. 2011;20(6):797-811.

- Burnouf T, Strunk D, Koh MB, et al. **Human platelet lysate: Replacing fetal bovine serum as a gold standard for human cell propagation?** *Biomaterials.* 2016 Jan;76:371-87.

- Alonso-Camino V, Clarke B, Nielsen J, et al. **In vitro expansion of mesenchymal stem cells using media supplemented with unfractionated heparin-free platelet lysate.** Poster presented at: ISCT Annual Meeting. London, UK. 2017 May.

- Bulur P, Wiltshire T, Dudakovic A, et al. **Impact of media supplementation on the secretion of IFN-γ induced indoleamine 2-3 deoxygenase and resultant immune suppression by mesenchymal stromal cells.** Poster presented at: ISCT Annual Meeting. Montreal, Canada. 2018 May.

- Alonso-Camino V, Mirsch W. **In vitro expansion of human primary endothelial cells for clinical use using EndoGo™ XF Medium supplemented with PLTGold® human platelet lysate.** Poster presented at: ISCT Annual Meeting. Montreal, Canada. 2018 May.

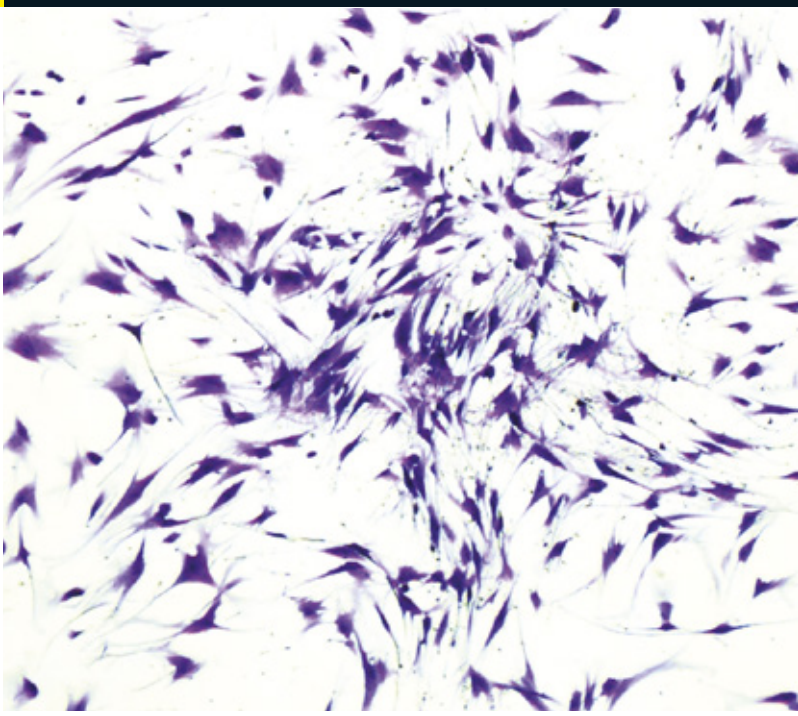
For Technical and Ordering Information, Please Contact Us At:
Mill Creek Life Sciences, LLC, 221 1st Avenue SW, Ste 209, Rochester, MN 55902 USA

Phone: +1 (507) 287-6257 Email: info@millcreekls.com Website: www.millcreekls.com

SARTORIUS

Product Datasheet

NutriCoat™ Attachment Solution



Cost-Effective, Efficient, Standardized Supplement Designed for the Attachment of Human Mesenchymal Stem Cells Under Serum-Free and Xeno-Free Culture Condition.

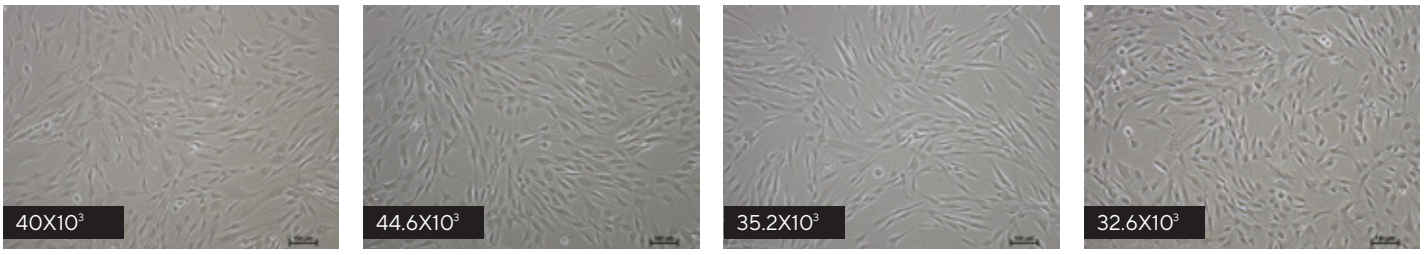
- Defined substrate containing clinical-grade human Fibrinogen (xeno-free)
- Easy-to-use stock solution for easy handling
- cGMP Manufactured
- Suitable for both hMSC expansion and differentiation
- Supports long-term multi-potency of hMSC
- Validated for multiple sources of human MSC culture
- Allows quick transition from research to clinical applications

NutriCoat™ is a defined substrate based on clinical-grade human Fibrinogen, designed for the attachment of human mesenchymal stem cells (hMSC) in serum-free (SF) and xeno-free (XF) culture systems. NutriCoat™ Attachment Solution is optimal for adherence of hMSC's from multiple sources (e.g. AT, CT, BM, DP) when cells are cultured with MSC NutriStem® XF Medium (Cat. # 05-200-1).

The substrate supports long term culturing of hMSC, as well as their enumeration using the colony forming unit-fibroblast (CFU-F) assay under SF and XF culture conditions. NutriCoat™ is a ready- to-use solution store at RT and offers a more affordable option when compared to other commonly used products.

NutriCoat™ is part of our Nutri™ product line, which reduces the burden of qualifying reagents during transition from research to clinical applications. NutriCoat™ is ideal for cell therapy research applications such as bone/cartilage diseases, bone marrow transplants/GVHD, cardiovascular disease, autoimmune disease, liver disease and cancer.

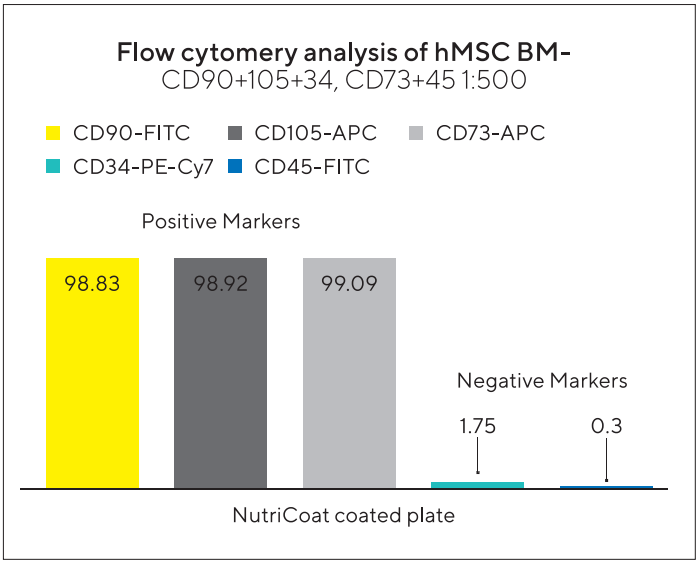
Suitable to hMSC From Various Sources



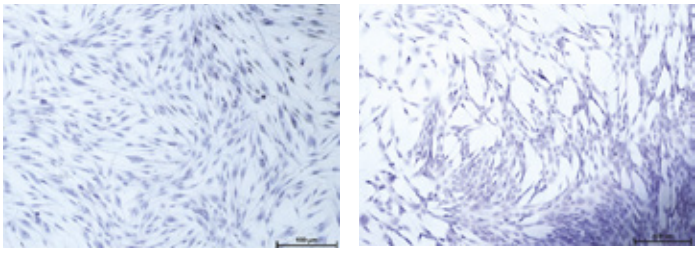
hMSC-AT hMSC-BM hMSC-CT hMSC-DP

Figure 1: Optimal growth in serum-free conditions. hMSC were cultured in MSC NutriStem® XF on plates coated with NutriCoat™. hMSC maintained typical fibroblast-like cells morphology.

A. FACS analysis



B. CFU-F assay 18 days



hMSC-AT hMSC-BM

C. Karyotype analysis

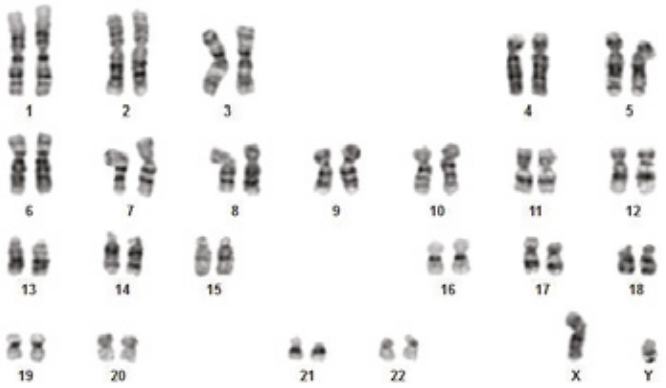


Fig.2. NutriCoat™ Attachement Solution supports long term expansion of hMSC in a serum-free, xeno-free environment. hMSC expanded in MSC NutriStem® XF using NutriCoat™ pre-coated cultureware. Flow cytometry analysis of hMSC-BM after 2P expression -CD90+105+34 1:250; CD73+45 1:500 (A). Representative images of colonies stained with 0.5% crystal violet (x100) (B). Normal karyotype of hMSC-BM P9(9) D16.5 (C).

Maintains Trilineage Differentiation Potential

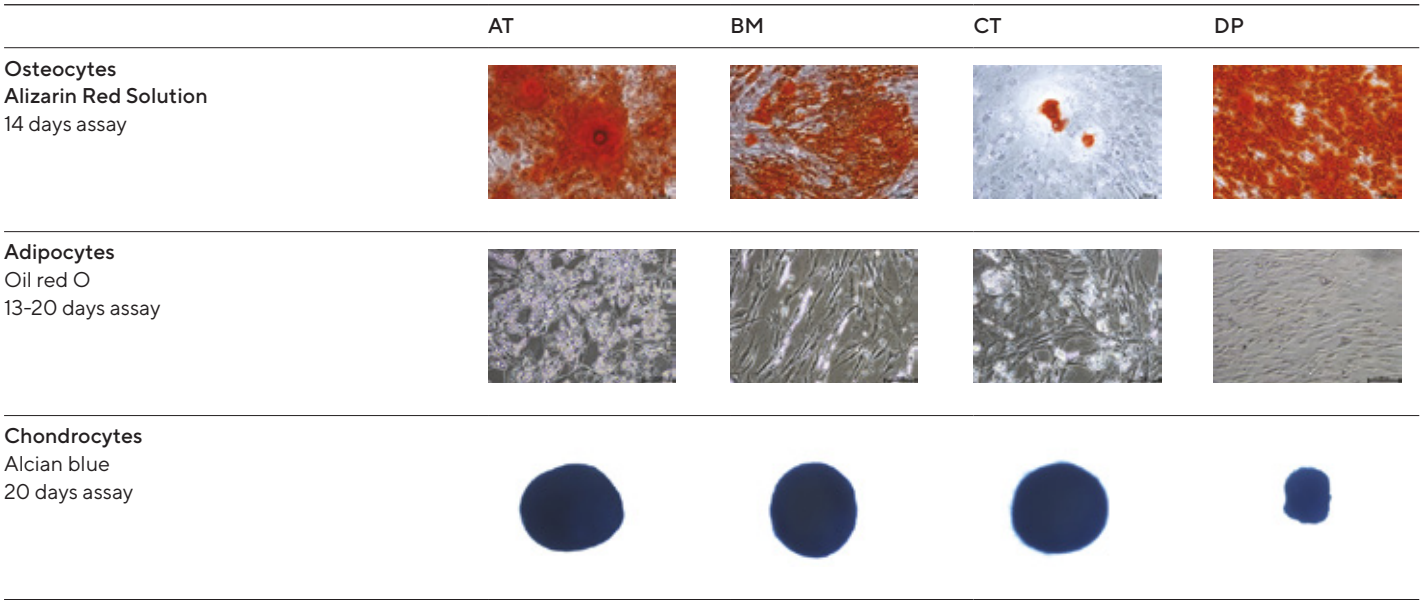


Figure 3. hMSCs from various sources (AT, BM, CT, DP) were cultured in MSC NutriStem® XF Medium on NutriCoat™, and were seeded into MSCgo™ Adipogenic / MSCgo™ Osteogenic / MSCgo™ Chondrogenic Differentiation Media for up to 20 days, revealing Adiopocytes (Oil Red O lipid stains), Chondrocytes (Alcian Blue glycosaminoglycan stain) and Osteoblasts (Alkaline Phosphatase cell surface glycoprotein stain).

Ordering Information

Cat . #	Product	Qty
05-760-1-15	NutriCoat™ Attachment Solution	1.5ml/vial
05-200-1A	MSC NutriStem® XF Medium	500ml
05-201-1U	MSC NutriStem® XF Supplement Mix	3ml
03-043-1A	Saline - Sodium Chloride 0.9% Solution	500ml

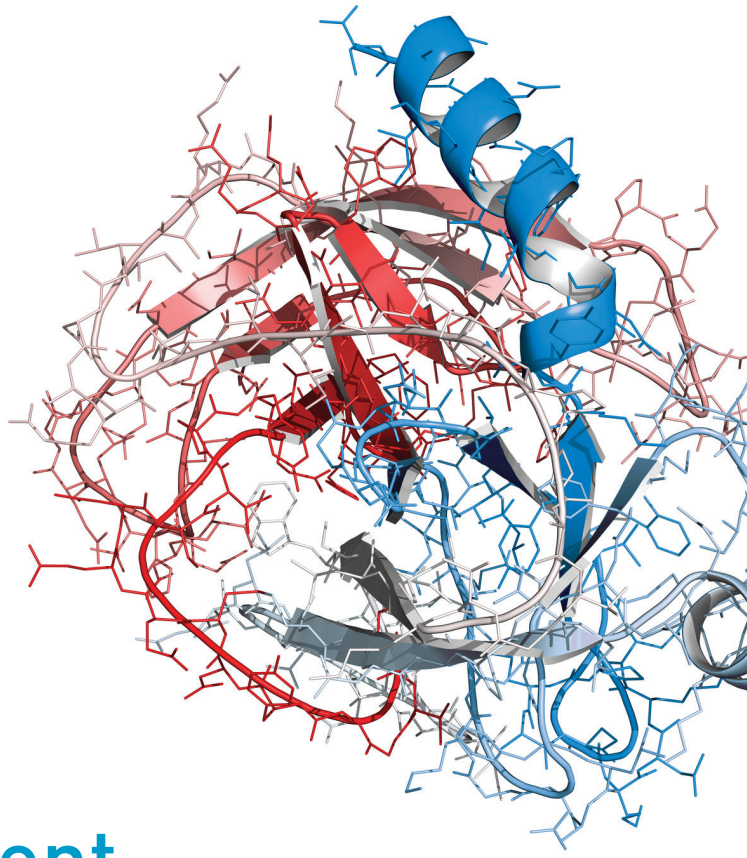
Germany
Sartorius Stedim Biotech GmbH
August-Spindler-Strasse 11
37079 Goettingen
Phone +49 551 308 0

USA
Sartorius Stedim North America Inc.
565 Johnson Avenue
Bohemia, NY 11716
Toll-Free +1 800 368 7178

For further contacts, visit
www.sartorius.com

Status: 11 | 2020

BI
Biological Industries
Culture of Excellence



Chemical structure of trypsin enzyme

All the way with animal component-free solutions

Animal Component-Free (ACF) Recombinant Trypsin Solutions

Alternative to porcine/bovine trypsin

- **Animal Component-Free (ACF)**
  Eliminates the risk of viruses or other potential adventitious agents found in animal derived components.
- **High Purity**
  - Pure enzyme solutions increase specificity and eliminate contaminating activities found in lower purity enzymes.
  - Free of chymotrypsin, carboxypeptidase-A and other protease contaminants.
  - Prevents the toxic effects induced by non-desirable proteases.
- **High Activity**
  - Maximizes the yield of functionally viable cells.
  - Recombinant Trypsin-EDTA Solution (Cat. No. 03-079-1) accelerates the dissociation phase.
  - Results in efficient dissociation of adherent cell types (including primary and sensitive cells) from surfaces and tissues.
  - Optimized for hMSCs, from a variety of sources, cultured in both serum-free and serum–containing systems.
- **Enzyme Inhibition**
  Inactivation with Soybean Trypsin Inhibitor (SBTI, Cat. No. 03-048-1).
- **Ready-to-use**

Comparison of hMSC Dissociation with Various Trypsin Solutions

Recovery of hMSC- Adipose Tissue (AT) cultured in MSC NutriStem XF medium after dissociation with three different dissociation solutions

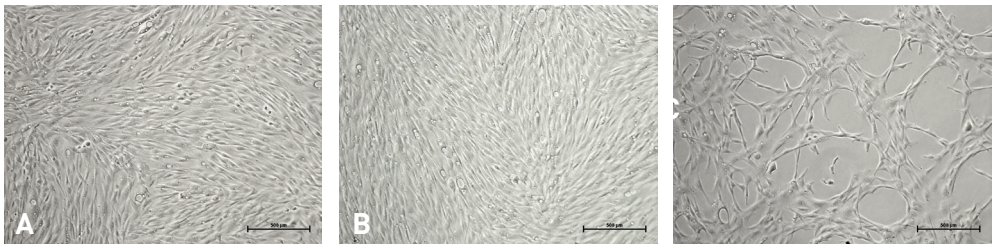


Figure 1.
hMSC-AT, 3 days post split I – Cells were equally seeded (5000cells/cm^2) in MSC NutriStem® XF medium. The dissociation procedure was carried out at 37° using:
A. Recombinant Trypsin Solution, without EDTA (BI's Cat. No. 03-078-1)
B. Crystalline Trypsin (BI's Cat. No. 03-047-1) (high purity)
C. Trypsin sol. C (BI's Cat. No. 03-053-1) (crude trypsin)

Rapid and Efficient Dislodging of hMSC with Recombinant Trypsin

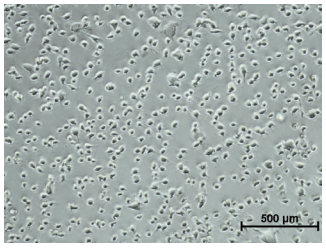
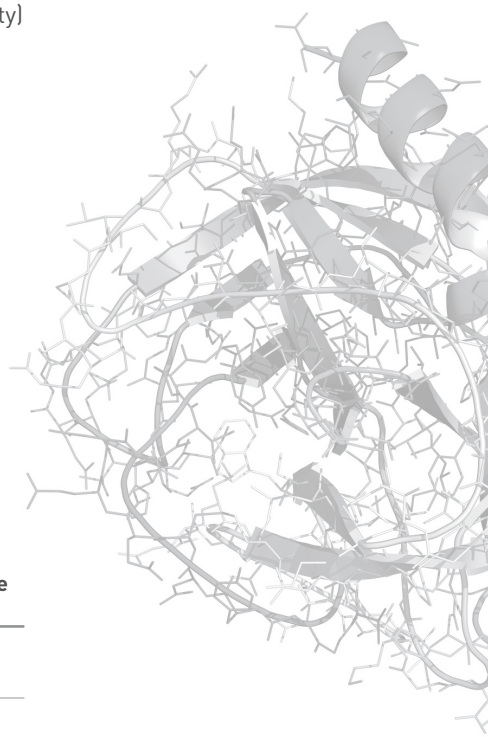


Figure 2.
hMSC-BM cultured in MSC NutriStem® XF medium, were incubated for 2-5 min at 37°. with Recombinant Trypsin Solution (Cat. No. 03-078-1)



Ordering Information

Product Name	Cat. No.	Unit Size	Storage Temp.
Recombinant Trypsin Solution	03-078-1B	100ml	RT
Recombinant Trypsin-EDTA Solution	03-079-1B	100ml	RT
Soybean Trypsin Inhibitor (SBTI) x50	03-048-1C	20ml	-20°C

Source of raw material:
The Recombinant Trypsin is produced by submerged fermentation of Fusarium Oxysporum.
It is derived from a production process which does not utilize any raw materials and/or processing aids of animal origin.

E37/3 7/14

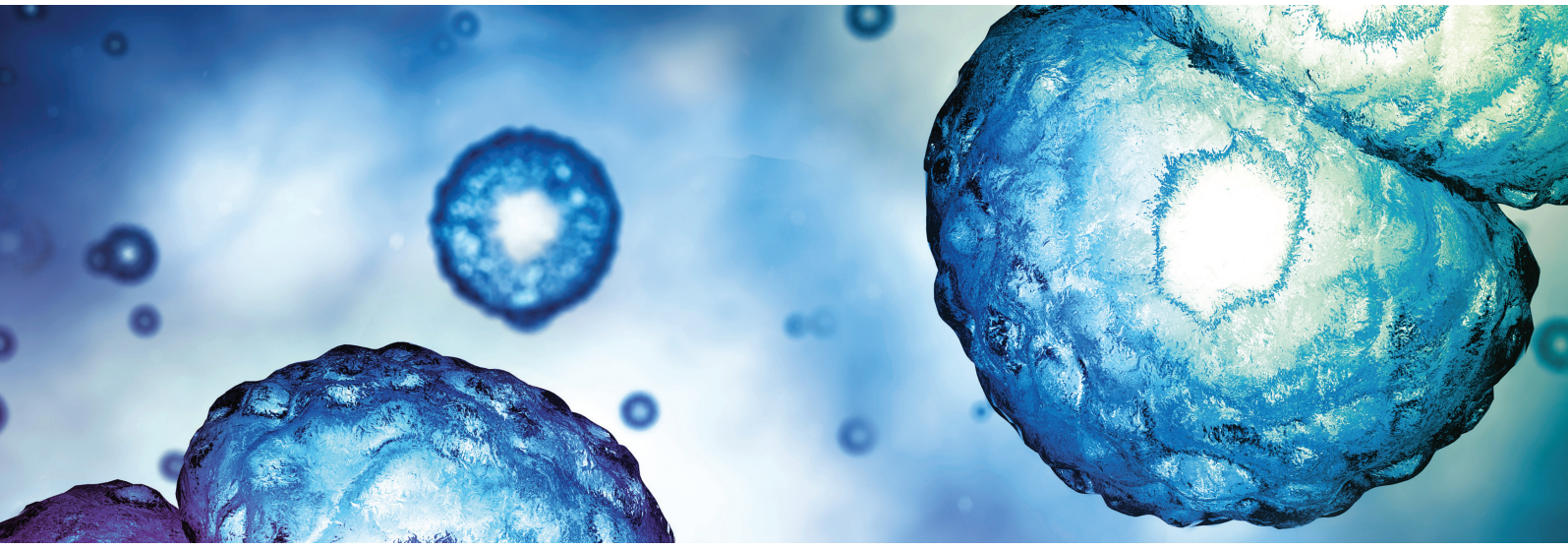
BI Biological Industries
Culture of Excellence

Biological Industries Israel Beit Haemek Ltd.
Kibbutz Beit Haemek 25115, Israel
T.+972.4.9960595 F.+972.4.9968896
Email: info@bioind.com
www.bioind.com

BI
Biological Industries
Culture of Excellence

MSCgo™ Differentiation Media

Advanced adipogenesis, osteogenesis, and chondrogenesis from hMSCs



- **Complete, serum-free, xeno-free media**
- **Validated to efficiently differentiate hMSCs from various sources**
- **Simple, efficient protocols**

Redefining stem cell excellence

Whether for basic research, drug discovery, or for therapeutic applications, stem cell differentiation requires standardized culture methods to ensure reproducible and reliable results. The unique line of **MSCgo™ Differentiation Media** offers a complete system for multipotency evaluation of human mesenchymal stem cells (hMSCs), designed to efficiently differentiate hMSCs from a variety of sources into mature adipocytes, chondrocytes, and osteocytes/osteoblasts.

The MSCgo™ Differentiation Media are complete, serum-free, and xeno-free solutions, eliminating the drawbacks of unwanted background differentiation or interruption in cell metabolism, while providing consistent and repeatable results.

Each MSCgo™ Differentiation Medium contains all growth factors and supplements necessary for differentiation to the specified lineage. No adaptation phase is required prior to initiating differentiation when the hMSC's are cultured using NutriStem® MSC XF Medium. The differentiation media are validated with hMSC from a variety of sources, including bone marrow (BM-hMSC), adipose tissue (AT-hMSC), Wharton's jelly (WJ-hMSC), and umbilical cord tissue (CT-hMSC).

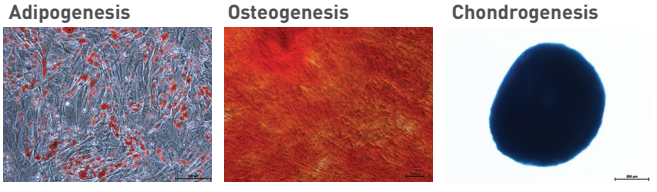


Figure 1: MSCgo™ Differentiation Media is a complete system for multipotency evaluation of hMSCs into mature adipocytes, osteocytes/osteoblasts, and chondrocytes. Images taken of mature differentiated cells from adipose tissue-derived hMSCs.

Adipogenic Differentiation

MSCgo™ Adipogenic Differentiation Medium is a serum-free and xeno-free formulation developed for optimal differentiation of hMSCs to mature adipocytes. Efficient adipogenic differentiation of hMSCs is achieved through cycles in culture with MSCgo™ Adipogenic Differentiation Medium and maintenance medium (NutriStem MSC XF Medium). Oil Red-O solution is then used to stain accumulated intercellular lipid droplets, which are an indication of mature adipocytes.

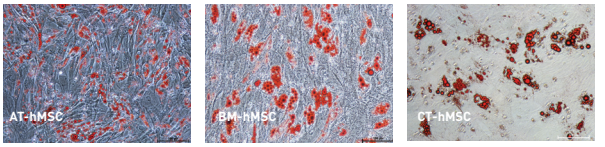


Figure 2: Adipogenesis. After expansion in culture using NutriStem® MSC XF Medium, hMSCs from adipose tissue (AT-hMSC), bone marrow (BM-hMSC), and cord tissue (CT-hMSC) were transferred to a differentiation assay in MSCgo Adipogenic Differentiation Medium. Images were taken after 16 days of adipogenesis and Oil Red-O staining (20X).

Osteogenic Differentiation

The **MSCgo™ Osteogenic Differentiation Media** were developed for differentiation serum-free, xeno-free differentiation of hMSCs to mature osteocytes/osteoblasts with ready-to-use media and simple protocols. Osteogenic differentiation of hMSC results in the formation of a mineralized culture that can be detected and semi-quantified by Alizarin Red S (ARS) staining.

Mature osteocytes are generated between 14 and 21 days with the MSCgo™ Osteogenic Differentiation Medium. Faster osteogenesis is observed with the **MSCgo™ Rapid Osteogenic Differentiation Medium**, in which mature osteocytes are observed in less than 10 days.

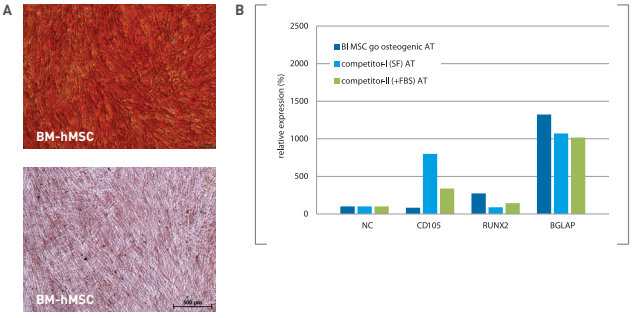


Figure 3: Osteogenic Differentiation. A. BM-hMSCs differentiate into osteoblasts when using serum-free MSCgo Osteogenic Differentiation Medium, detected by ARS staining (top). No osteogenesis is observed when serum-containing medium is used (bottom). **B.** The MSCgo Osteogenic Differentiation Medium results in the lowest expression of CD105 (hMSC marker), and the highest expression of RUNX2 (osteogenic differentiation marker) and BGLAP (mature osteoblast marker), as compared to other serum-free and serum-containing media.

Chondrogenic Differentiation

The **MSCgo™ Chondrogenic Differentiation Medium** is a complete kit, including basal medium and optimized supplement mix, containing all growth factors and supplements necessary for chondrogenisis of hMSCs from a variety of source tissues. Chondrogenic differentiation of hMSC in 3D spheroid culture results in the formation of cartilage with a typical extracellular matrix rich of Aggrecan, a proteoglycan used as an indicator for cartilage formation and can be detected with Alcian Blue, a dark-blue dye.

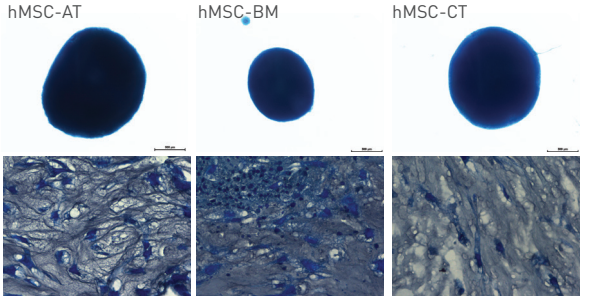


Figure 4: Chondrogenesis. A. Cartilage differentiation from hMSCs after a 21-day assay using MSCgo Chondrogenic Differentiation Medium followed by Alcian Blue staining. **B.** Histological images of mature chondrocytes surrounded by a cartilage matrix after a 21-day assay using MSCgo Chondrogenic Differentiation Medium followed by Toluidine Blue staining (40X).

Ordering Information

Cat. #	Product	Qty
05-440-1B	MSCgo™ Osteogenic Differentiation Medium	100 mL
05-442-1B	MSCgo™ Rapid Osteogenic Differentiation Medium	100 mL
05-220-1B	MSCgo™ Chondrogenic XF Medium	100 mL
05-221-1D	MSCgo™ Chondrogenic XF Supplement Mix	10 mL
05-330-1B	MSCgo™ Adipogenic XF Medium	100 mL
05-331-1-01	MSCgo™ Adipogenic XF Supplement Mix I	0.1 mL
05-332-1-15	MSCgo™ Adipogenic XF Suuplement Mix II	1.5 mL

How to Order

Biological Industries | T. 972-4-996-0595 | F. 972-4-996-8896 | info@bioind.com

Biological Industries USA | T. 860.316.2702 | F. 860.269.0596 | orders@bioindusa.com

CE CERTIFIED QMS ISO 9001 2008 CERTIFIED QMS ISO 13485 2003 cGMP Manufacturing Facility

Culture of Excellence

www.bioind.com

SARTORIUS

Product Datasheet

Picus® & Picus® Nxt Electronic Pipettes

The Most Sophisticated and Ergonomic Pipettes Ever!

Product Information

Sartorius Picus® & Picus® Nxt are the most sophisticated and ergonomic electronic pipettes on the market. These exceptionally compact and lightweight pipettes have been specially designed to ease the user's workload and to protect the user from repetitive strain injury (RSI).

Description

The Picus family pipettes are kind to your hand with unbeatable ergonomic design that ensures reliable and repeatable experiment results. Repeatable pipetting results are guaranteed with the electronic piston control and brake, raising all users to expert level. Picus® Nxt provides distinct advantages for highly regulated laboratories.

Features

Picus® & Picus® Nxt

- Highest level of ergonomics provided by the uniquely low weight, light electronic tip ejection and comfortable handle design
- Extensive range of pipetting modes reduces the needed pipetting steps and speeds up work
- Electronic brake and piston control system provide outstanding accuracy and repeatability of pipetting results, independent of the user
- Intuitive user interface in five language options: English, French, German, Russian and Chinese, enables ease of use
- Adjustment wheel offers extremely fast volume setting and menu navigation
- Optiload enables perfect tip sealing for accurate delivery from each channel
- Safe-Cone Filters prevent the risk of contamination cost-effectively
- Microwell plate tracker guides the user to pipette into the correct wells
- Calibration adjustment in 1, 2 or 3 points

Picus® Nxt

- Certificate of accredited 3-point calibration (per ISO 17025 and ISO 8655) delivered with the product at no extra charge
- User programmable pipetting protocols enable the storage of three frequently needed pipetting workflows; easily activated when needed.
- 2-level password protection for stored programs to prevent unauthorized changes (optional)
- Pipette locking, e.g. in case of contamination, increases lab safety by disabling the pipette from use.
- Service and calibration reminders help the users to remember important service dates.
- Repeated blow-out helps to dispense the last droplets of e.g. viscous liquids

Applications

- PCR and other DNA/RNA techniques
- ELISA
- Protein analysis
- Cell culture

Applications

Fully electronic liquid handling in the volume range of 0.2 µL to 10 mL.

Technical Date

Techncal Specifications	
Rechargeable battery	Li-Polymer with protection circuit
Charging time	Approx. 1 hour
Charger	Universal charger with EU, US|JPN, UK, CHN, AUS and KOR plugs
Weight	100 g (1-ch, 300 µL) 160 g (8-ch, 300 µL)
Length	210 mm (1-ch, 300 µL) 216 mm (8-ch, 300 µL)
Number of pipetting cycles	>1,000
Volume range	1-ch: 0.2 – 10,000 µL 8- & 12-ch: 0.2 – 1200 µL
Pipetting modes	Picus®: 8 + 6 | Picus® Nxt: 9 + 7
DC-motor concept	Electronic piston control Electronic brake
Memory places	Picus®: 10 | Picus® Nxt: 3* + 10
Tip ejection	Electronic
Spring loaded tip cones	Optiload feature in multichannel models
Filters	Safe-Cone Filters in all models >10 µL
Autoclavable lower parts**	121 °C, 20 min, 1 bar
Charging Stands, available separately	Charging Stand for 1 pipette, Charging Carousel for 4 pipettes
Warranty	2 years, possibility for 1 year extended warranty

* For Protocols
** Excluding 1200 µL multichannel models

Pipetting Modes	Advanced Functions
Pipetting	Tracker, Mixing, Counter, Repeated Blow-out*
Reverse Pipetting	Tracker, Counter, Excess Volume Adjustment
Manual Pipetting	Repeated Blow-out*
Multi-Dispensing	Tracker, Excess Volume Adjustment, Auto-Dispensing
Diluting	Mixing, Repeated Blow-out*
Sequential Dispensing	Excess Volume Adjustment
Multi-Aspiration	Repeated Blow-out*
Titrate	Fast Dispensing
Protocol*	All additional modes

* Advanced function, Repeated Blow-out, and pipetting mode, Protocol, are only available in Picus® Nxt models.

Ordering Information

Picus® Nxt	Picus®	Channels	Volume Range (µL)	Increment (µL)	Test Volume (µL)	Mode[P|D]	Systematic Error[N] Limit ± (%)	(µL)	Random Error[N] Limit (%)	(µL)
LH-745021	735021	1	0.2 – 10	0.01	10	P	1.0	0.100	0.4	0.040
					5	P	1.2	0.060	0.7	0.035
					1	P	3.0	0.030	2.0	0.020
					0.2	P	17.5	0.035	10	0.020
					1	D	6.0	0.060	7.0	0.070
LH-745041	735041	1	5 – 120	0.10	120	P	0.5	0.60	0.15	0.18
					60	P	0.7	0.42	0.2	0.12
					12	P	2.0	0.24	1.0	0.12
					5	P	5.5	0.275	2.5	0.125
					12	D	4.0	0.48	4.0	0.48
LH-745061	735061	1	10 – 300	0.20	300	P	0.5	1.50	0.15	0.45
					150	P	0.6	0.90	0.2	0.30
					30	P	1.5	0.45	0.8	0.24
					10	P	5.0	0.50	2.4	0.24
					30	D	3.0	0.90	3.0	0.90
LH-745081	735081	1	50 – 1,000	1.00	1,000	P	0.45	4.5	0.15	1.5
					500	P	0.6	3.0	0.2	1.0
					100	P	2.0	2.0	0.5	0.5
					50	P	4.0	2.0	1.0	0.5
					100	D	2.5	2.5	2.0	2.0
LH-745101	735101	1	100 – 5,000	5.00	5,000	P	0.5	25	0.15	7.5
					2,500	P	0.7	17.5	0.2	5
					500	P	1.6	8	0.4	2
					100	P	8.0	8	2.0	2
					500	D	2.4	12	2.4	12
LH-745111	735111	1	500 – 10,000	10.00	10,000	P	0.6	60	0.2	20
					5,000	P	0.9	45	0.3	15
					1,000	P	3.0	30	0.6	6
					500	P	7.0	35	1.2	6
					1,000	D	4.0	40	2.4	24
LH-745321	735321	8	0.2 – 10	0.01	10	P	1.2	0.120	0.5	0.050
LH-745421	735421	12			5	P	1.5	0.075	0.8	0.040
					1	P	4.0	0.040	3.0	0.030
					0.2	P	25.0	0.050	15.0	0.030
					1	D	12.0	0.120	15.0	0.150
LH-745341	735341	8	5 – 120	0.10	120	P	0.6	0.72	0.3	0.36
LH-745441	735441	12			60	P	0.8	0.48	0.4	0.24
					12	P	2.5	0.30	1.67	0.20
					5	P	6.0	0.30	4.0	0.20
					12	D	4.5	0.54	8.0	0.96
LH-745361	735361	8	10 – 300	0.20	300	P	0.6	1.80	0.2	0.60
LH-745461	735461	12			150	P	0.8	1.20	0.3	0.45
					30	P	2.33	0.70	1.0	0.30
					10	P	8.0	0.80	3.0	0.30
					30	D	3.33	1.00	6.0	1.80
LH-745391	735391	8	50 – 1,200	1.00	1,200	P	0.6	7.2	0.2	2.4
LH-745491	735491	12			600	P	1.0	6.0	0.3	1.8
					120	P	2.5	3.0	1.0	1.2
					50	P	8.0	4.0	2.4	1.2
					120	D	3.33	4.0	3.33	4.0

[N] Note: The listed systematic and random error values can be achieved only under strictly controlled conditions during type test per ISO 8655. The best compatibility is achieved when combining Sartorius pipettes and Sartorius tips. The systematic error and random error results, in tests, have been achieved using Sartorius Optifit tips at factory default speed settings. Due to the continuous product development by Sartorius, the systematic and random error values are subject to change without prior notice.

[P] P = Pipetting Mode

[D] D = Multi-dispensing mode. The listed systematic and random error values are of 10 measurements at 10 % of the nominal volume.

All pipettes are supplied with a universal charger (EU, UK, US | JPN, KOR, AUS and CHN plugs)

Germany
Sartorius Lab Instruments GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen
Phone +49 551 308 0

USA
Sartorius Corporation
565 Johnson Avenue
Bohemia, NY 11716
Phone +1 631 254 4249
Toll-free +1 800 635 2906

Finland & Baltics
Sartorius Biohit Liquid Handling Oy
Laippatie 1
00880 Helsinki
Phone +358 9 755 951

For further contacts, visit
www.sartorius.com

Status: 10 | 2020

SARTORIUS

Product Datasheet

Microsart® Research Mycoplasma

Mycoplasma Detection Kit for qPCR

Benefits

- Easy to use
- Highest flexibility
- Maximum reliability

Product Information

Microsart® Research Mycoplasma enables a fast and robust detection of Mycoplasma DNA in cell culture supernatants most applicable in research and development. Carefully selected primer | probe combinations are highly specific for a region within the 16 S rRNA gene of at least 110 Mycoplasma species.

Working Principle

2 µL of sample material, e.g. cell culture supernatant, can be added directly to the PCR reaction tube. For the detection of Mycoplasma DNA a TaqMan® real-time qPCR is used. Depending on the sample matrix the Sartorius spin-column based DNA preparation can be performed prior to PCR analysis to increase sensitivity or prevent inhibition. 200 µL sample volume can be used as starting material for DNA preparation if using the Microsart® AMP Extraction kit.
2 µL of isolated DNA extract are amplified in a qPCR cycler and the evaluation can be performed with the standard cycler software.

Applications

The Microsart® Research Mycoplasma real-time PCR protocol is especially designed for fast and reliable screening of cell culture supernatants most applicable in research and development, e. g. biotech and bio-pharmaceutical research and development, university and governmental research groups. It is used for direct detection of *Mollicutes (Mycoplasma, Acholeplasma, Spiroplasma)* in cell culture, cell culture media components and derived biologicals.

Fast Result

Microsart® Research Mycoplasma utilizes real-time PCR (qPCR). The kit can be performed with any type of real-time PCR cycler able to detect the fluorescence dyes FAM™ and ROX™. The detection procedure can be performed within 3 hours.

Easy Handling

The kit contains all essential components in a ready-to-use master mix.

- Screening with a small sample volume
- Cost saving (in case there is no EP 2.6.7 compliance required)

TaqMan® Probes

The application of TaqMan® probes adds specificity to the PCR detection system. Highly specific results are already generated during the cycling process – no subsequent melting curve analysis is needed.

Contamination Prevention

The kit contains dUTP instead of dTTP, so the option is available to degrade amplicons from previous analyses by using uracil-DNA glycosylase (UNG). Thus, the occurrence of false-positive results can be minimized. UNG is not included in the kit.

Summary

For scientists and lab technicians who need to screen cell culture supernatnants for Mycoplasma DNA, Sartorius offers the Microsart® RESEARCH Mycoplasma Detection Kit.

Technical Specifications

Each kit contains reagents for 25 reactions. The expiry date of the unopened package is specified on the package label. The kit compontents are stored at +2 to +8°C. After opening and rehydration the components need to be stored below -18°C. The LOT specific Certificate of Analysis can be downloaded from the manufacturer's website (www.minerva-biolabs.com).

Kit Component	25 Reactions
Order No.	SMB95-1005
Mycoplasma Mix	1 × lyophilized
Rehydration Buffer	1 × 1.0 mL
Positive Control	1 × lyophilized
PCR grade Water	1 × 1.0 mL

Ordering Information

Mycoplasma Kits

Description	Quantity	Order No.
Microsart® Research Mycoplasma	25	SMB95-1005

Accessories

Description	Quantity	Order No.
Microsart® AMP Extraction	50 extractions	SMB95-2003

Related Products

Description	Quantity	Order No.
Microsart® AMP Mycoplasma	25	SMB95-1001
Microsart® ATMP Mycoplasma	25	SMB95-1003

Germany
Sartorius Lab Instruments GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen
Phone +49 551 308 0

USA
Sartorius Corporation
565 Johnson Avenue
Bohemia, NY 11716
Phone +1 631 254 4249
Toll-free +1 800 635 2906

For further information, visit
www.sartorius.com

Status: 10 | 2021

SARTORIUS

Product Datasheet

Microsart® Research Bacteria

Rapid Detection of Total Bacteria Within 2½ hr

Benefits

- >95% of all known bacteria detected in one test
- Fast: only 2½ hr time-to-result
- Reliable: highly specific TaqMan® probes
- Easy to use
- Less pipetting effort
- No sample preparation mandatory

Product Information

Microsart® Research Bacteria is used for fast and reliable direct detection of bacterial contamination in cell cultures, cell culture supernatants and cell media components in research and development or whenever there is no need for regulation conform testing (i.e. according to EP | USP | JP).

Kit Components and Storage

Each kit contains all reagents for 25 or 100 reactions. 4 color-coded tubes, with master mix, buffer, positive control and negative control, make the handling as simple as possible. The expiry date and the storage conditions of the unopened package are noted on the package label. The kit components are stored until use at +2 °C to +8 °C and must be stored after rehydration or opening at <-18 °C. Please note: The master mix, also called Research Bacteria Mix, should be protected from light all the time.

Test Principle

Microsart® Research Bacteria utilizes real-time PCR. The detection procedure can be performed within 2½ hours, including less than ½ hour hands-on time. In contrast to the detection by cell cultivation method, samples do not need to contain vital bacteria.

The assay can be performed with any type of real-time PCR cycler able to detect the fluorescence dyes FAM™ and ROX™.

Bacteria are specifically detected by amplifying a highly conserved 16S rRNA coding region in the bacterial genome. The amplification is detected at 520 nm (FAM™ channel). The kit includes primer and FAM™ labeled probes which allow the specific detection of more than 95% of all known bacterial species so far described as contaminants of cell cultures and media components. Eukaryotic DNA is not amplified by this primer | probe system.

False negative results due to PCR inhibitors or improper DNA extraction are detected by the internal amplification control which is part of the PCR master mix. The amplification of the internal amplification control is detected at 610 nm (ROX™ channel).

Ordering Information

Order No.	Description	Quantity
SMB95-1009	Microsart® Research Bacteria	25 reactions
SMB95-1010	Microsart® Research Bacteria	100 reactions

Related Products

DNA Extraction Kits

Order No.	Description	Quantity
SMB95-2001	Microsart® Bacteria Extraction	50 extractions
SMB95-2003	Microsart® AMP Extraction (only for Mycoplasma qPCR)	50 extractions

Detection Kits for qPCR

Order No.	Description	Quantity
SMB95-1001|1002	Microsart® AMP Mycoplasma	25|100 reactions
SMB95-1003|1004	Microsart® ATMP Mycoplasma	25|100 reactions
SMB95-1005|1006	Microsart® Research Mycopl.	25|100 reactions
SMB95-1007|1008	Microsart® ATMP Bacteria	10 patients| 100 reactions

Microsart® Validation Standard according to EP 2.6.1, EP 2.6.7, USP <63> and USP <71>
3 vials each, 10 CFU/vial for Mycoplasma species, <100 CFU/vial for other bacteria.

Order No.	Description
SMB95-2011	*Mycoplasma arginini*
SMB95-2012	*Mycoplasma orale*
SMB95-2013	*Mycoplasma gallisepticum*
SMB95-2014	*Mycoplasma pneumoniae*
SMB95-2015	*Mycoplasma synoviae*
SMB95-2016	*Mycoplasma fermentans*
SMB95-2017	*Mycoplasma hyorhinis*
SMB95-2018	*Acholeplasma laidlawii*
SMB95-2019	*Spiroplasma citri*
SMB95-2020	*Mycoplasma salivarium*
SMB95-2005	*Bacillus subtilis*
SMB95-2006	*Pseudomonas aeruginosa*
SMB95-2007	*Micrococcus luteus | Kocuria rhizophila*
SMB95-2008	*Clostridium sporogenes*
SMB95-2009	*Bacteroides vulgatus*
SMB95-2010	*Staphylococcus aureus*

Microsart® Calibration Reagent, 1 vial, 10^8 genomes/vial

Order No.	Description
SMB95-2021	*Mycoplasma arginini*
SMB95-2022	*Mycoplasma orale*
SMB95-2023	*Mycoplasma gallisepticum*
SMB95-2024	*Mycoplasma pneumoniae*
SMB95-2025	*Mycoplasma synoviae*
SMB95-2026	*Mycoplasma fermentans*
SMB95-2027	*Mycoplasma hyorhinis*
SMB95-2028	*Acholeplasma laidlawii*
SMB95-2029	*Spiroplasma citri*
SMB95-2030	*Bacillus subtilis*
SMB95-2031	*Pseudomonas aeruginosa*
SMB95-2032	*Micrococcus luteus | Kocuria rhizophila*
SMB95-2033	*Clostridium sporogenes*
SMB95-2034	*Bacteroides vulgatus*
SMB95-2035	*Staphylococcus aureus*
SMB95-2036	*Mycoplasma salivarium*

For PCR support and recommendation please contact PCR@Sartorius.com.

User-Supplied Equipment and Material

- DNA-free PCR reaction tubes for the specific qPCR device
- Microcentrifuge for 1.5 mL reaction tubes, i.e. Centrisart® A-14, Order No. A-14-1EU
- Pipettes with DNA-free filter tips to prepare and dispense the reaction mix (10, 100 and 1000 µL)
- Optional: For DNA extraction we recommend our Microsart® Bacteria Extraction kit, Order No. SMB95-2001
- qPCR device with filter sets for the detection of the dyes FAM™ and ROX™ and suitable for 25 µl PCR reaction volumes*

* Sartorius collaborates with Agilent. In case there is no access given to a qPCR instrument, Agilent provides the AriaMx qPCR System for comprehensive testing of Sartorius´ qPCR kits.

AriaMx Real-time PCR System from Agilent

Germany
Sartorius Lab Instruments GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen
Phone +49 551 308 0

USA
Sartorius Corporation
565 Johnson Avenue
Bohemia, NY 11716
Phone +1 631 254 4249
Toll-free +1 800 635 2906

For further information, visit
www.sartorius.com

Status: 10 | 2021

BI
Biological Industries
Culture of Excellence

NutriFreez® D10 Cryopreservation Medium

Powerful cryopreservation media optimized for various cells and tissues

NutriFreez® D10 Cryopreservation Medium is an optimized freezing solution designed and validated for the cryopreservation of various tissue and cell types, including but not limited to sensitive cell types such as hESCs, iPSCs, and MSCs. NutriFreez® D10 Medium maintains defined and animal component-free conditions during cryopreservation, essential to maintaining consistency when culturing cells in a xeno-free system. NutriFreez® D10 Medium is ready-to-use and pre-formulated with DMSO, providing a protective environment for cells during the freezing, storage, and thawing process. Cells preserved with NutriFreez® D10 Medium show excellent attachment (Figure 1) and maintain proper pluripotency marker expression after thawing, with superior results compared to both serum-containing freezing media, other serum-free solutions, and homebrew formulations[1].

- **High recovery post thaw**
- **Ready-to-use solution**
- **Serum-free and protein-free**
- **Chemically-defined**
- **cGMP-manufactured**

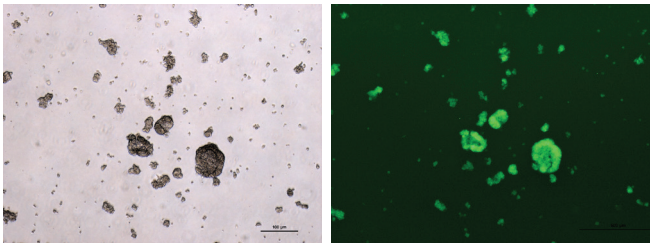


Figure 1: BGO1V/hOG cells (an Oct4-GFP reporter hES cell line) frozen in NutriFreez® D10 Medium and thawed into NutriStem® hPSC Medium on Matrigel. Images taken just 1 hour post-thaw show excellent survival and attachment of the hES cells, with high expression of Oct4 (green).

Applicable Cell Types

- Human Embryonic Stem Cells
- Induced Pluripotent Stem Cells
- Human Mesenchymal Stem Cells
- Peripheral Blood Mononuclear Cells
- Human Endothelial Cells
- T cells, including Chimeric Antigen Receptor (CAR T) Cells and Tumor Infiltrating Lymphocytes (TILs)
- Neuron Cells
- Hybridomas
- CHO Cells
- Vero Cells
- Multiple mammalian cell lines: MRC-5, HEK-293, HepG2, HeLaBSC-1, BGM3T3, MA-10BHK-21

Ordering Information

Cat. #	Product	Qty
05-713-1A	NutriFreez® D10 Cryopreservation Medium	500 mL
05-713-1B		100 mL
05-713-1E		50 mL
05-713-1C		20 mL
05-713-1D		10 mL
05-714-1A	NutriFreez® D10 Cryopreservation Medium, w/o phenol red	500 mL
05-714-1B		100 mL

1. Nishishita N, et al. An effective freezing/thawing method for human pluripotent stem cells cultured in chemically-defined and feeder-free conditions. AJSC 2015;4(1):38-49.

How to Order

Biological Industries | T. +972.4.9960595 | F. +972.4.9968896 | info@bioind.com

CE ISO 9001 2015 ISO 13485 2016 cGMP Manufacturing Facility

Germany
Sartorius Stedim Biotech GmbH
August-Spindler-Strasse 11
37079 Goettingen
Phone +49 551 308 0

USA
Sartorius Stedim North America Inc.
565 Johnson Avenue
Bohemia, NY 11716
Toll-Free +1 800 368 7178

For further contacts, visit
www.sartorius.com/car-t

Status: 02 | 2021