

ACE-2 expressing iPSCs grown in StemFit media (Image courtesy of Kazuo Takayma, CiRA, Japan)

⦿ STEM CELLS
STEMFIT®
**WEEKEND-FREE STEM
CELL CULTURE**

ANIMAL-ORIGIN-FREE |
DEFINED CULTURE MEDIA
- RECOMBINANT PROTEINS |
REPRODUCIBLE GROWTH RATES

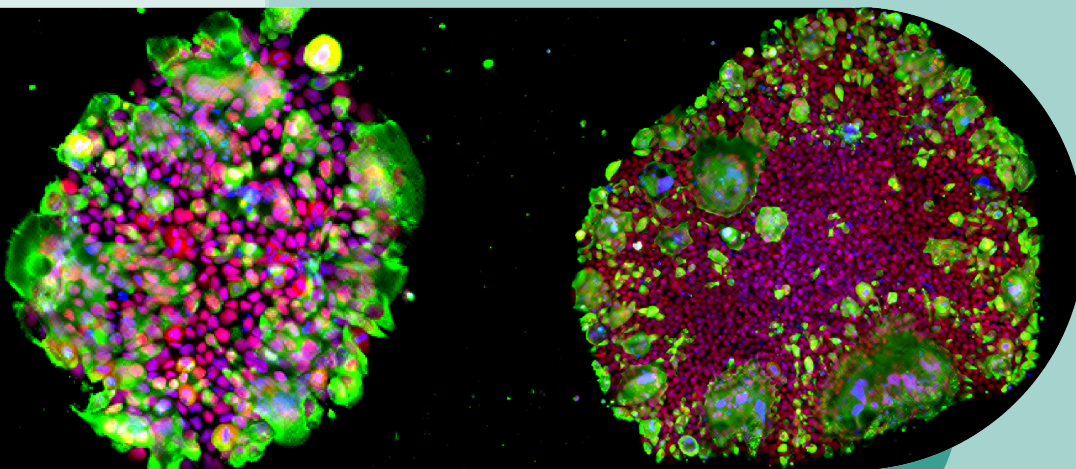
INTRODUCTION

WHAT IS STEMFIT®?

StemFit® offers a comprehensive range of animal-origin-free, chemically defined products, meticulously engineered to support every stage of stem cell research - from the maintenance and expansion of human pluripotent stem cells (hP-SCs) to their differentiation into a variety of cell lineages.

StemFit hPSC Culture Media is designed to maintain and expand Induced Pluripotent Stem Cells (iPSCs) and Embryonic Stem Cells (ESCs) under feeder-free conditions, ensuring optimal growth. Meanwhile, **StemFit® for Differentiation** provides a precisely formulated supplement that promotes reliable and consistent differentiation of hPSCs into multiple cell lineages.

Amsbio's **StemFit® Cell Culture media, iMatrix laminin** as ECM & **CELLBANKER** series freezing solutions work together to create the perfect **Stem Cell Synergy for your ES/iPS cell culture.**



Staining images of ACE2-expressing iPS cells grown in StemFit medium with iMatrix-511 as ECM (before and after cryopreservation in STEM CELLBANKER) infected with SARS-CoV-2 virus
Green: SARS-CoV-2 N protein, Red: OCT3/4, Blue: DAPI. Images courtesy of Kazuo Takayama (CIRA, Kyoto University, Japan)

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1. STEMFIT® hPSC CULTURE MEDIA

- **Animal-Origin-Free (AOF)**
- **Supports iPSC/ESC reprogramming, expansion and differentiation**
- **Highly stable and reproducible feeder-free culture system**
- **Optimal growth performance on any matrix**
- **Maintains genetic stability and normal karyotype over multiple passages**

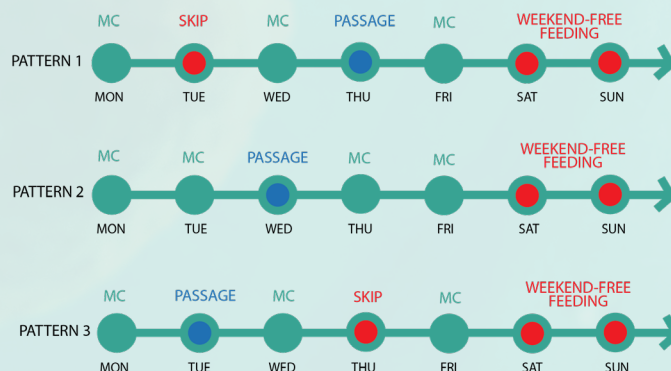
FEATURES & BENEFITS

AOF & REGULATORY COMPLIANT



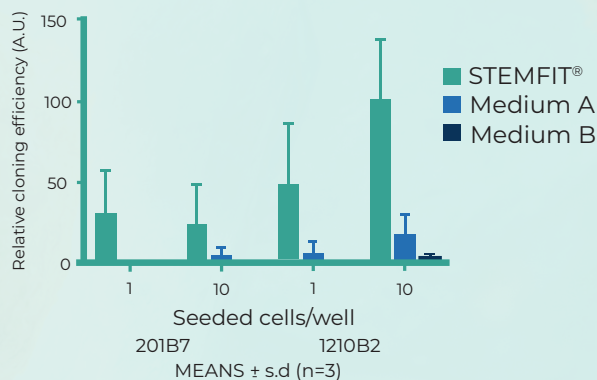
StemFit® is animal and human-derived component-free (USP<1043>, ISO20399), GMP-compliant, and ideal for hPSC expansion in clinical research and CGT manufacturing.

WEEKEND-FREE FEEDING



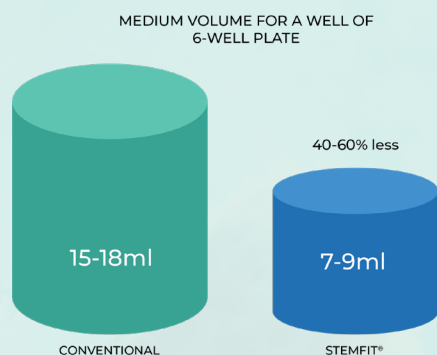
Simplifies protocols, lowers daily workload and media costs, enhances efficiency, and supports sustainable research.

START FROM A SINGLE CELL



StemFit® culture medium enhances colony formation from single-cell clones, ensuring reliable, homogeneous cell lines with minimal stress. It enables the selection of iPSCs with optimal characteristics while minimizing genetic variations.

COST-EFFECTIVE SOLUTION FOR STEM-CELL CULTURE



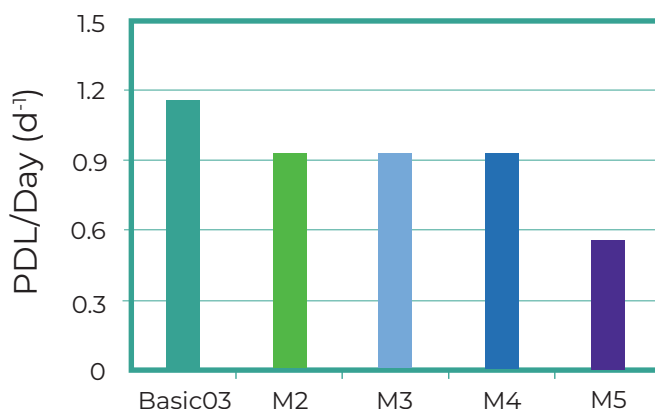
With less frequent media changes and reduced medium volume usage, a 500ml pack of StemFit® supports over 50% more wells compared to other leading competitor products, offering greater efficiency and cost-effectiveness.

ONE BOTTLE FORMULATION (ONLY BASIC04CT)



StemFit® Basic04 Complete (Basic04CT) is our next generation hPSC expansion media delivered in 1 ready-to-use bottle. This feature omits the mixing process in media preparation, minimizing the risk of contamination.

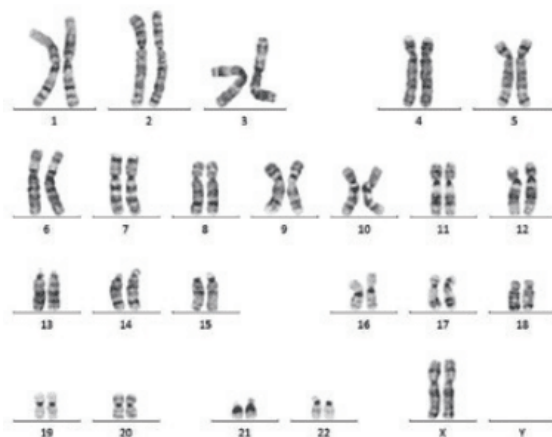
SUPERIOR GROWTH PERFORMANCE OF STEMFIT MEDIA



The figure shows the average level of population doublings per day (PDL/day(d-1)).

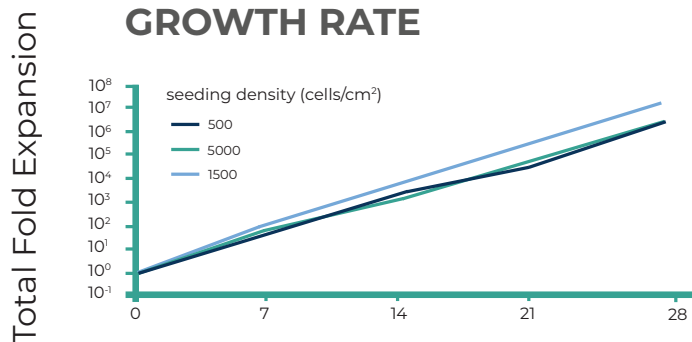
The Cell and Gene Therapy Catapult study found that iPS cells cultured with StemFit Basic03 exhibit higher proliferation compared to those cultured with 4 other media. The increased cell yield is ideal for manufacturing by accelerating timelines and improving efficiency.

MAINTAINS CONSISTENT GENETIC STABILITY



StemFit® is optimized for single cell passaging and shows the most consistent gene expression profile after 5 passages compared to commercially available media. Additionally, no karyotypic abnormalities in iPSCs were observed after 52 passages, preserving pluripotency and homogeneity.

REPRODUCIBLE GROWTH RATE

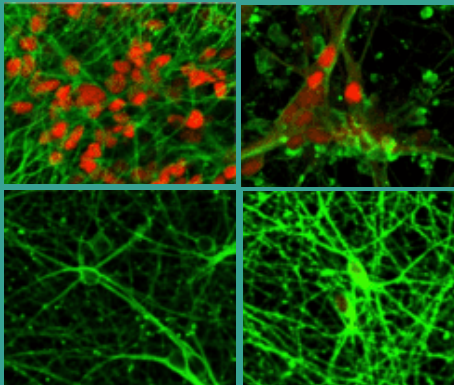


Cultivating stem cells with StemFit® ensures highly reproducible growth rates, as feeder cells are no longer required. The morphology of stem cells grown in StemFit® closely mirrors that of cells cultivated on feeder layers, with colony shape and size remaining highly consistent and round.

FEATURE	Basic03	Basic04 Complete
Suitable for Single-cell Culture	YES	YES
Free of Animal & Human Material	YES	YES
cGMP	YES	YES
Application	hPSC expansion media for research and manufacturing	hPSC expansion media for research and manufacturing
Number of Bottles	2	1
bFGF	Sold Separately	Included (80mg/ml)

WORLD'S FIRST SPINAL CORD INJURY TREATMENT USING IPS CELLS

FOXA2 B111-tubulin HB9 B111-tubulin



Researchers at the University of California San Diego, in collaboration with international partners, successfully generated spinal cord organoids that mimic the structure and function of the developing human spinal cord. Using Amsbio's StemFit® for Differentiation they achieved efficient and consistent differentiation of human pluripotent stem cells into spinal cord tissues. These organoids displayed key features of neural tube development and motor neuron formation, offering a powerful model for studying spinal cord disorders. This breakthrough highlights the critical role of StemFit® for Differentiation in supporting scalable, reproducible, and clinically relevant iPSC-based research.

Scientists at Keio University Hospital have successfully transplanted iPSC cell-derived neural stem/progenitor cells (iPSC-NS/PCs) into a patient, to start the first-in-human clinical study for the treatment of spinal cord injury using iPSC-derived cells.



2. STEMFIT® FOR DIFFERENTIATION

- Animal-Origin-Free, chemically defined supplement
- Supports directed hPSC differentiation into ectoderm, mesoderm and endoderm lineages
- Allows for spontaneous differentiation of hPSCs via embryoid bodies
- Compatible with various induction factors and cytokines
- Available in GMP-compliant version



AOF & REGULATORY COMPLIANT

The AOF composition of StemFit® for Differentiation makes it ideal for hPSC differentiation in research and CGT manufacturing with minimal risk of immunogenic contamination. Also available in a GMP-compliant version.

STABLE AND CONSISTENT DIFFERENTIATION

StemFit® for Differentiation enables efficient, stable lineage-specific differentiation (endoderm, mesoderm, ectoderm) of hPSCs under chemically defined, animal-free conditions, ideal for CGT applications.

StemFit® For Differentiation allows for stable differentiation induction and is very easy to use.



Dr. Satoshi Okamoto,
Yokohama City University graduate
School of Medicine

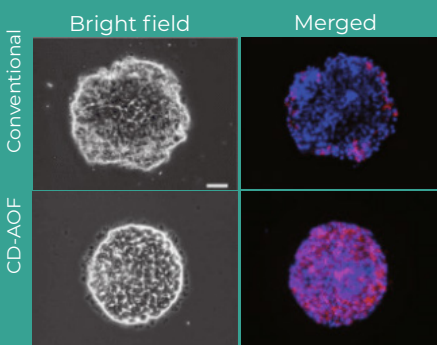
STEMFIT® hPSC
CULTURE MEDIA

STEMFIT®
FOR
DIFFERENTIATION

STEMFIT® FOR
MESENCHYMAL
STEM CELLS (MSC)
CULTURE MEDIUM

STEMFIT
PROTEINS™

REVOLUTIONIZING LIVER DISEASE TREATMENT WITH IPSC-DERIVED LIVER ORGANOIDS



Generation of human induced pluripotent stem cell-derived liver buds with chemically defined and animal origin-free media. Scientific Reports, 10(1). <https://doi.org/10.1038/s41598-020-73908-1>

Researchers at The University of Tokyo and Yokohama City University have developed a fully animal-origin-free protocol for differentiating human induced pluripotent stem cells (iPSCs) into liver buds (iPSC-LBs), utilizing StemFit® for Differentiation. This chemically defined medium enabled efficient and scalable production of functional liver organoids, meeting regulatory standards for therapeutic applications. The iPSC-LBs demonstrated enhanced albumin secretion and expression of mature hepatic markers, highlighting their potential in liver disease treatment. This advancement underscores StemFit® for Differentiation's role in facilitating stable and reproducible iPSC differentiation for clinical research.



3. STEMFIT® FOR MSC (MESNCHYMAL STEM CELLS) CELL CULTURE MEDIA



- **Chemically defined medium**
- **Optimized for BM-MSC, UC-MSC, and ADSC**
- **Serum-free and human platelet lysate-free**
- **Supports expansion and maintenance**

CHEMICALLY DEFINED & CGT-COMPLIANT

StemFit® for MSC is chemically defined, minimizing the risk of viral infection and lot-to-lot variation. Approved by Japan's PDMA for CGT use.

Excellent MSC Isolation and Marker Expression

StemFit® for MSC allows for highly effective isolation of MSCs from tissues under chemically defined conditions. This medium can maintain MSCs with high level of marker expression and differentiation potential.

Superior and Consistent MSC Expansion

StemFit® for MSC delivers superior and consistent cell growth compared to serum-containing media (FBS or hPL) due to chemically defined formulation. These features enable efficient and clinically applicable MSC isolation.

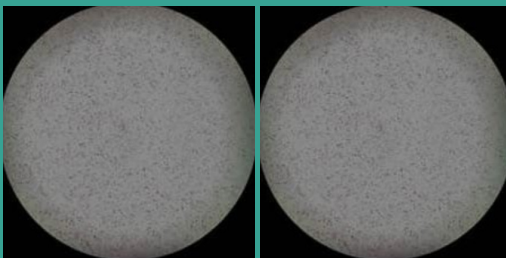
STEMFIT® hPSC
CULTURE MEDIA

STEMFIT®
FOR
DIFFERENTIATION

STEMFIT® FOR
MESENCHYMAL
STEM CELLS (MSC)
CULTURE MEDIUM

STEMFIT
PUROTEIN™

NOVEL MSC THERAPY FOR LIVER CIRRHOSIS WITH HUMAN BONE MARROW DERIVED MSCS



Adipogenic differentiation: Oil-red O staining of bone marrow-derived MSCs cultured with (A) standard medium (10%FBS+DMEM) or (B) StemFit® For MSC. Image courtesy of Taro Takami (Yamaguchi University Graduate School of Medicine, Japan).

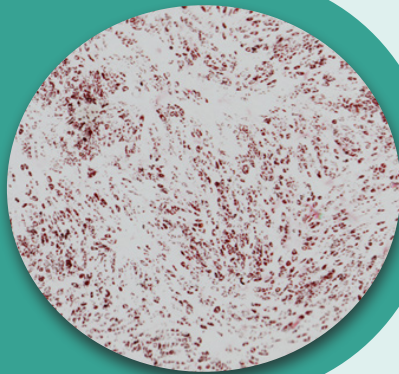
Researchers at the National Center for Child Health and Development have developed a fully animal-origin-free and chemically defined protocol for expanding mesenchymal stem cells (MSCs), utilizing StemFit® for MSC. This medium enabled consistent and safe MSC expansion across various sources, including umbilical cord, bone marrow, and adipose tissue. Compared to conventional FBS or hPL-based media, StemFit® for MSC delivered superior cell growth with minimal variability, meeting regulatory standards for clinical use. The stable performance and safety profile of this medium underscore its potential in enabling scalable and clinically compliant MSC production for cell and gene therapy applications.



4. STEMFIT PUROTEINS™

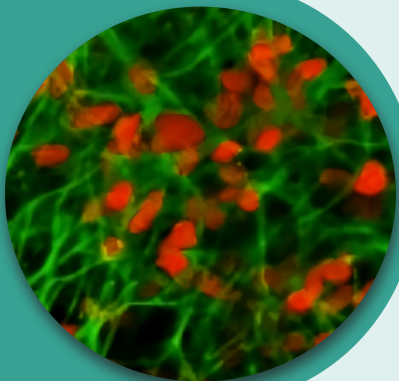
StemFit Puroteins™ is a brand of Animal-Origin-Free recombinant proteins that includes bFGF, Activin, SCF and KGF. They are highly compatible with StemFit hPSC culture media; allowing for the establishment of highly efficient differentiation systems. Available in GMP and non-GMP formats, they enable a seamless transition from basic to clinical research.

UNMATCHED SAFETY & CONSISTENCY



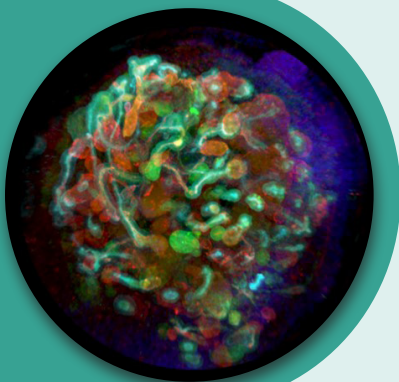
Puroteins are manufactured free from animal or human-derived components, ensuring superior safety and reliable lot-to-lot consistency for research and clinical applications.

OPTIMIZED FOR STEM CELL RESEARCH & CGT MANUFACTURING



Puroteins are designed for compatibility with StemFit® hPSC Cell Culture media, enabling high-efficiency differentiation while ensuring an effortless transition to GMP-compliant production for future cell therapy applications.

READY-TO-USE FROZEN FORMAT



Puroteins are supplied as a frozen liquid, eliminating the need for reconstitution and reducing preparation time, making them ideal for advanced manufacturing workflows.

StemFit

Stem cell culture media



StemFit Basic03

[Web site](#) ▶

StemFit Basic03 GMP

[Web site](#) ▶



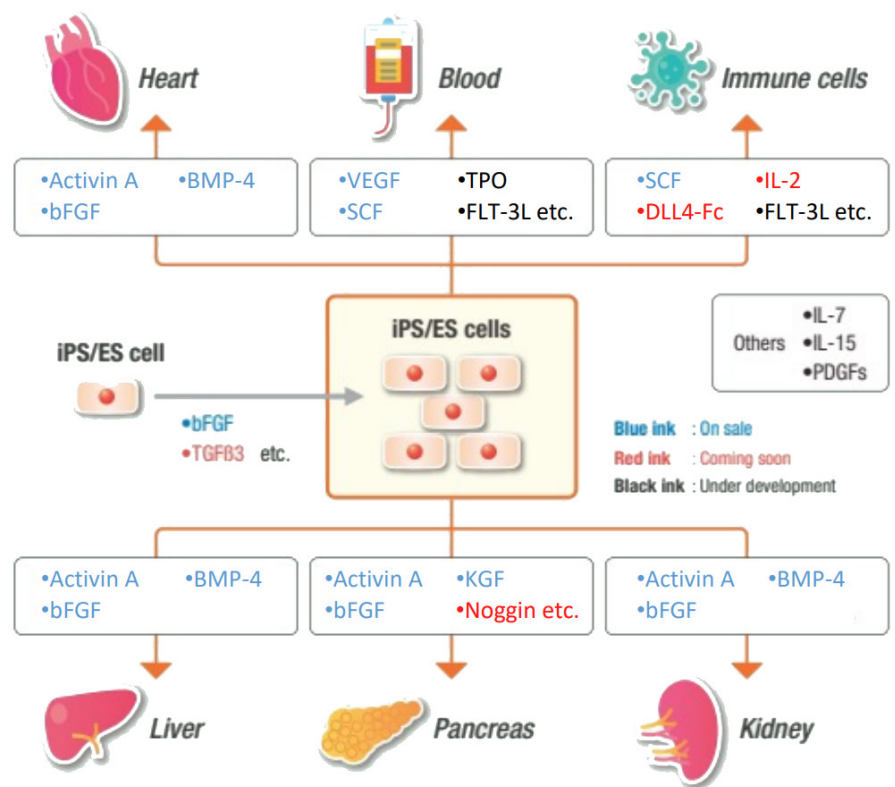
StemFit For Differentiation

[Web site](#) ▶

StemFit Purotein®

Recombinant Proteins

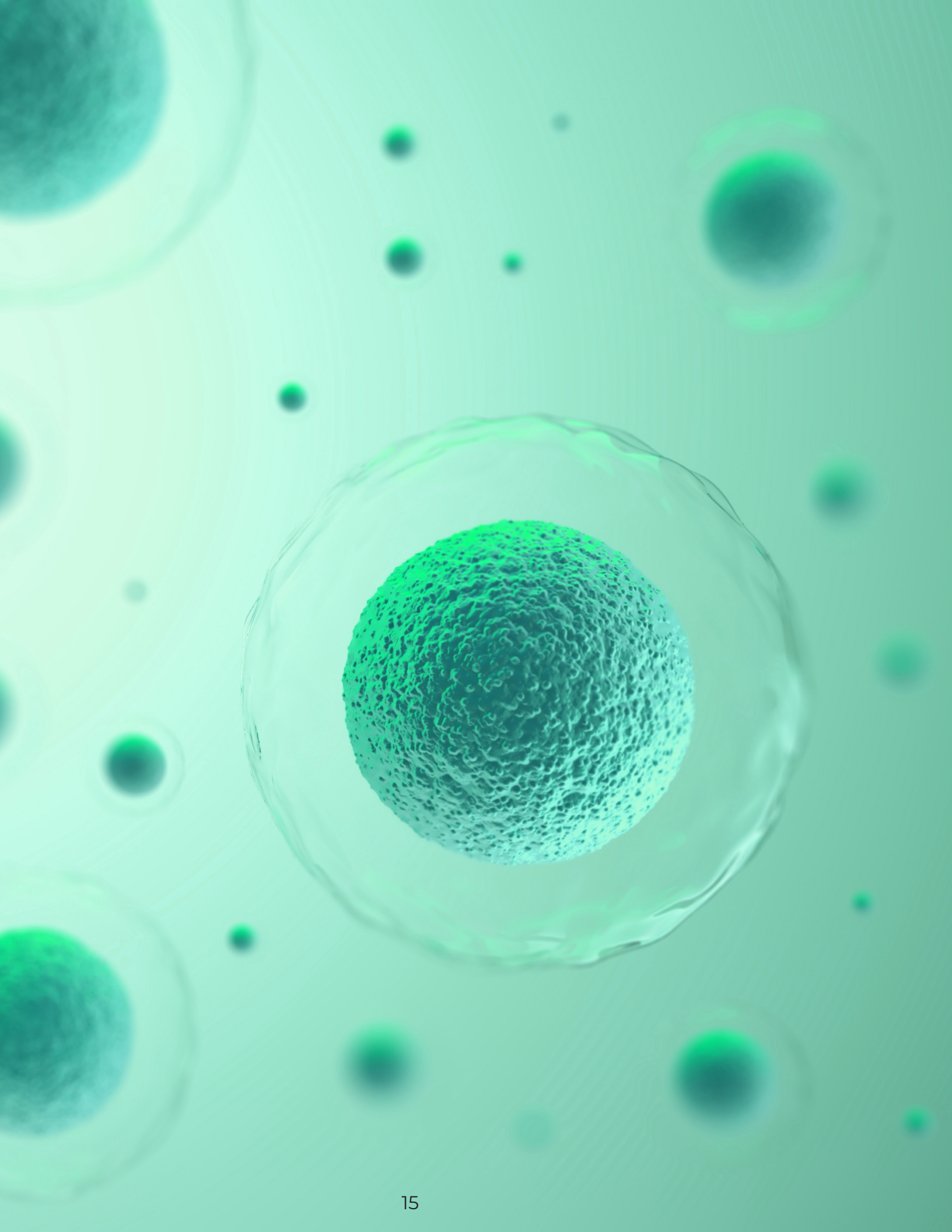
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PRODUCT LIST

PRODUCT	INFORMATION	PACKSIZE	PRODUCT CODE
STEMFIT BASIC03 GMP	hPSC expansion medium for research and manufacturing	Liquid A: 400mL Liquid B: 100mL	SF031-001
STEMFIT BASIC04 COMPLETE GMP	hPSC expansion medium for research and manufacturing (includes 80ng/mL BFGF)	500mL	SF041-001
STEMFIT FOR DIFFERENTIATION	Differentiation supplement for hPSCs	100mL	SFD-401
STEMFIT FOR DIFFERENTIATION GMP	Differentiation supplement for hPSCs, GMP compliant	100mL	SF051-001
STEMFIT FOR MESENCHYMAL STEM CELLS	hMSCs expansion medium	500mL	SFMSC-A3

Product	Information	Packsizes	Product Code
Activin A	<u>StemFit Purrotein</u> Human recombinant Activin A, Non-GMP (10 ug, 50 ug, 1 mg) GMP compliant (1 mg)	10 ug (0.1 mg/ml, 100 μ l) 50 ug (0.1 mg/ml, 500 μ l) 1mg (0.1 mg/ml, 10 ml)	AMS.ACTA-10 AMS.ACTA-50 AMS.ACTA-1MG AMS.ACTA-1MG -GMP
bFGF	<u>StemFit Purrotein</u> Human recombinant FGF Basic, GMP Compliant (1 mg)	1 mg (0.3 mg/ml)	AMS.FGF-100
BMP4	<u>StemFit Purrotein</u> Recombinant Human BMP-4, Non GMP (10 ug, 50 ug, 1 mg)	10 ug (0.1 mg/ml, 100 μ l) 50 ug (0.1 mg/ml, 500 μ l) 1mg (0.1 mg/ml, 10 ml)	AMS.SP-BMP4-R-010UG AMS.SP-BMP4-R-050UG AMS.SP-BMP4-R-001MG
KGF	<u>StemFit Purrotein</u> Recombinant Human KGF (FGF-7) Non-GMP (10 ug, 50 ug, 1 mg) GMP compliant (1 mg)	10 ug (0.1 mg/ml, 100 μ l) 50 ug (0.1 mg/ml, 500 μ l) 1mg (0.1 mg/ml, 10 ml)	AMS.SP-KGF-R-010UG AMS.SP-KGF-R-050UG AMS.SP-KGF-R-001MG AMS.SP-KGF-G-001MG
SCF	<u>StemFit Purrotein</u> Recombinant Human SCF Non-GMP (10 ug, 50 ug, 1 mg)	10 ug (0.1 mg/ml, 100 μ l) 50 ug (0.1 mg/ml, 500 μ l) 1mg (0.1 mg/ml, 10 ml)	AMS.SP-SCF-R-010UG AMS.SP-SCF-R-050UG AMS.SP-SCF-R-001MG
VEGF	<u>StemFit Purrotein</u> Recombinant Human VEGF, Non-GMP (10 ug, 50 ug, 1 mg)	10 ug (0.1 mg/ml, 100 μ l) 50 ug (0.1 mg/ml, 500 μ l) 1mg (0.1 mg/ml, 10 ml)	AMS.SP-VEGF-R-010UG AMS.SP-VEGF-R-050UG AMS.SP-VEGF-R-001MG





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