

BM-HPME® IS AN EXTRACELLULAR MATRIX (ECM) OF PROTEINS SYNTHESIZED IN VITRO BY BONE MARROW STROMAL CELLS. THIS PRODUCT IS COMPOSED OF MORE THAN 150 PROTEINS THAT WERE SECRETED AND ASSEMBLED BY BONE MARROW CELLS DURING THE PRODUCTION OF THE HPME.®

The final product is cell free with only the ECM attached to the surface of the culture vessel. This cell culture substrate provides a native three-dimensional microenvironment which can be used for rapid expansion of high quality mesenchymal stem cells (MSCs).



**Product Number:**  
**BM-HPME-6WP**  
Six well plate (sleeve of five)



**Product Number:**  
**BM-HPME-T150**  
T-150 flask (sleeve of five)



**Product Number:**  
**BM-HPME-T75**  
T-75 flask (sleeve of five)



**Product Number:**  
**BM-HPME-100mm**  
100 mm dish (sleeve of five)

**Product Use.** **NOT FOR HUMAN USE.** This product is for research use only. Not to be used for diagnostic or therapeutic applications.

**Presentation.** Dehydrated.

**Safety Information.** Wear appropriate protective eyewear, clothing, and gloves. Handle in accordance with established bio-safety practices.

**Storage and Stability.** Store at 2-8°C and avoid extended exposure to light.

**Reconstitution.** Rehydrate using phosphate buffered saline (PBS) or media for 1 hour at 37 °C prior to use (2 ml for 6wp, 15 ml for T75, 30 ml for the T150 and 10 ml for the 100 mm dish). Wash 1X with PBS or media before seeding cells.

**info@stembiosys.com**

**210-877-9323**

#### REFERENCES

**Lai, Y et al.** (2010) Reconstitution of marrow-derived extracellular matrix ex vivo: a robust culture system for expanding large-scale highly functional human mesenchymal stem cells. *Stem Cells Dev* 19: 1095-1107.

**Chen, XD et al.** (2007) Extracellular matrix made by bone marrow cells facilitates expansion of marrow-derived mesenchymal progenitor cells and prevents their differentiation into osteoblasts. *J Bone Miner Res* 22: 1943-1956.

This product may be covered in part or in whole by US Patent #'s 8,084,023 ; 8,388,947 ; 8,961,955

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Limited product warranty: StemBioSys warrants that this product will be free of mechanical defects (cracks in the plastic or torn or ripped outer packaging). If you have any questions about this product, please contact StemBioSys at [info@stembiosys.com](mailto:info@stembiosys.com).



### **General BM-HPME<sup>®</sup> Rehydration Protocol**

BM-HPME<sup>®</sup> IS AN EXTRACELLULAR MATRIX (ECM) OF PROTEINS SYNTHESIZED IN VITRO BY BONE MARROW STROMAL CELLS. THIS PRODUCT IS COMPOSED OF MORE THAN 150 PROTEINS THAT WERE SECRETED AND ASSEMBLED BY BONE MARROW CELLS DURING THE PRODUCTION OF THE BM-HPME<sup>®</sup>.

### **About HPME<sup>®</sup>**

Our novel technology platform is an advanced stem cell culture system that replicates the 3-dimensional “home” in which stem cells naturally reside and proliferate. Our unique technology enables users to isolate and grow stem cells from a variety of sources including but not limited to adipose, bone marrow and umbilical cord blood/tissue.

### **BM-HPME<sup>®</sup> Is Ready-to-Use**

The final product is cell free with only the ECM attached to the surface of the culture vessel. This cell culture substrate provides a native three-dimensional microenvironment which can be used for rapid expansion of high quality mesenchymal stem cells (MSCs).

StemBioSys offers a variety of aseptically prepared and irradiated pre-coated cell culture plates and flasks that are suited for a broad range of applications. BM-HPME<sup>®</sup> is available in 6 well plate, 100 mm dishes, and the T-75 and T-150 flask formats.

## General BM-HPME<sup>®</sup> Rehydration Protocol

(All BM-HPME<sup>®</sup> products can be rehydrated using this protocol)

### Supplies Required

#### Reagents

- Phosphate Buffered Saline (PBS) or preferred media (RT or 37° C)

#### Materials

- BM-HPME<sup>®</sup>
- Serological Pipettes

#### Equipment

- Laminar flow biological hood
- 37° C, 5% CO<sub>2</sub> humidified incubator

**Note:** Sterile technique is required when handling the reagents and BM-HPME<sup>®</sup>. Safe laboratory procedures should be followed and protective clothing should be worn.

1. Sanitize the outer packaging before removing the BM-HPME<sup>®</sup> within the biological hood.
2. Determine the volume of PBS or cell culture media that will be used to rehydrate the plate or flask. Refer to the table below. Pipet PBS or media into the BM-HPME<sup>®</sup> dish accordingly.

BM-HPME-6WP	2 ml/well
BM-HPME-T75	15 ml
BM-HPME-T150	30 ml
BM-HPME-100 mm	10 ml

3. Incubate the BM-HPME<sup>®</sup> for 1 hour at 37° C with 5% CO<sub>2</sub>.
4. Carefully aspirate the PBS or media.
5. Wash the dish by pipetting the same amount of solution used to rehydrate the plate.
6. Aspirate and seed cells according to cell specifications provided by the manufacturer.

To learn more about BM-HPME<sup>®</sup> visit us at [www.stembiosys.com](http://www.stembiosys.com) or call us at 210-877-9323.

StemBioSys, Inc.  
3463 Magic Drive, Ste. 110  
San Antonio, Texas, 78229

\*HPME<sup>®</sup> and BM-HPME<sup>®</sup> may be protected by one or more of the following patents: US Patent numbers 8,084,023; 8,388,947; 8,961,955.

# ENABLING INNOVATIVE REGENERATIVE MEDICINE SOLUTIONS

StemBioSys is committed to enhancing the quality and economics of isolating, growing and delivering stem cells through our novel High Performance Micro Environment (HPME™) technology. Our patented bone marrow HPME (BM-HPME™) creates a natural, protein based environment for expanding stem cells, resulting in small proliferative and undifferentiated cells.

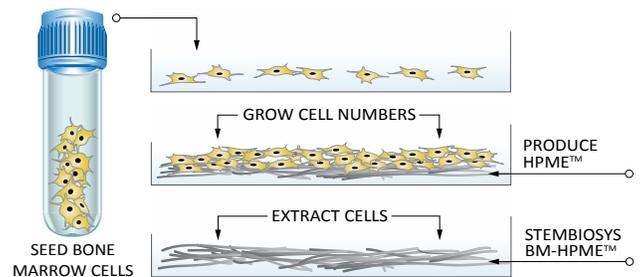
## ABOUT BM-HPME™

Stem cells have emerged as the future of health care but there are a number of unmet needs which must be addressed before widespread clinical and therapeutic applications become a reality. StemBioSys's patented BM-HPME product offers a solution.

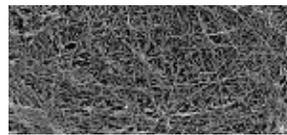
Our novel technology platform is an advanced stem cell culture system that replicates the 3-dimensional "home" in which stem cells naturally reside and proliferate. Our unique technology enables users to isolate and grow stem cells from a variety of sources including but not limited to adipose, bone marrow and umbilical cord blood/tissue.

This 3-dimensional microenvironment allows a variety of stem cells to replicate more rapidly and with greater preservation of stem cell phenotype ("stemness") than traditional tissue culture plastic. It has allowed StemBioSys to efficiently grow stem cells from a variety of sources opening up potential for research, pharmaceutical and novel clinical uses.

## Production Process:



## Finished Product:



Electron Micrograph of BM-HPME



The Research product BM-HPME coated culture vessels

\* BM-HPME may be protected by one or more of the following patents:  
US Patent numbers 8,084,023; 8,388,947; 8,961,955.

## WHY BM-HPME™?

Multiple studies have shown that BM-HPME provides a higher quantity of usable stem cells, that are smaller and more proliferative and less differentiated when compared to cells grown on tissue culture-treated plastic and other comparable substrates.

### BM-HPME IS ORIGINAL AND UNIQUE

BM-HPME is the only stem cell substrate to closely mimic the full biochemical and structural microenvironment that stem cells normally see in their native environment.

### BM-HPME IS READY-TO-USE

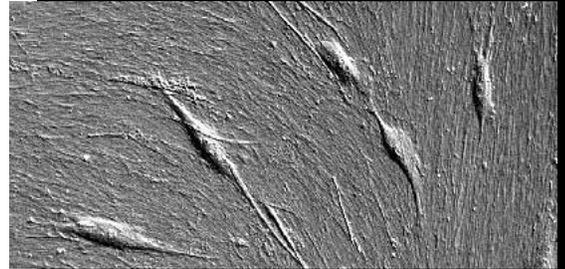
For the research market, the matrix is already attached to the culture vessel, no reconstitution of powders or fluids and coating of dishes performed by in-house laboratory personnel is required.

### HIGHER QUALITY AND QUANTITY OF CELLS

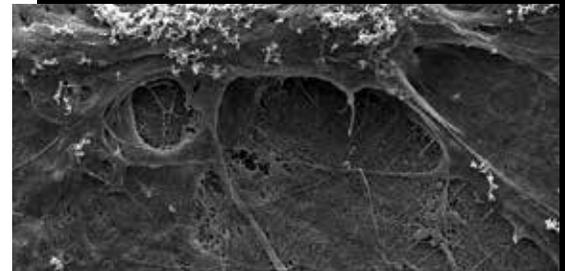
Multiple experiments growing stem cells on HPME have exhibited enhanced growth and improved retention of key stem cell characteristics.

## ABOUT STEMBIOSYS

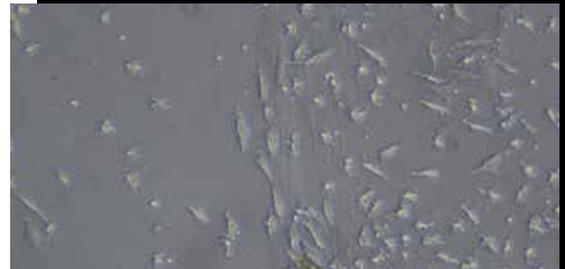
Located in San Antonio, Texas, StemBioSys Inc. is an emerging biomedical company focused on the isolation, expansion and delivery of specialized adult stem cells for research, diagnostic and clinical use. The company is led by a team of industry renowned professionals in business, research and product development.



Stem cells growing on BM-HPME



Bone marrow MSC interacting with the StemBioSys BM-HPME



#### STEM CELL ISOLATION:

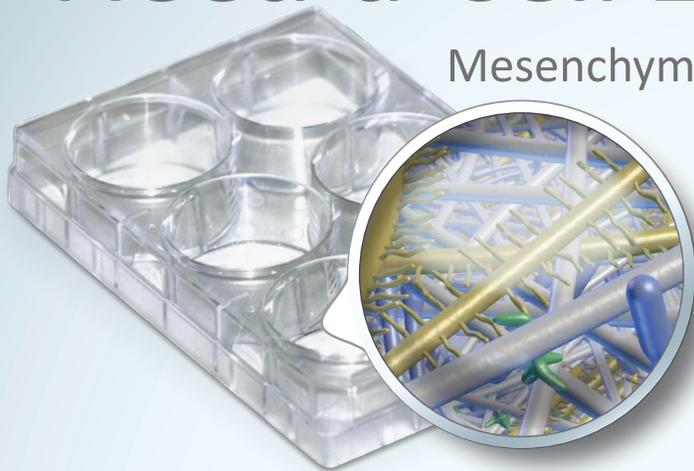
Cord blood stem cell attachment: Standard cell culture plastic (left side), BM- (right side)



To inquire about purchasing our BM-HPME, please visit us at [StemBioSys.com](http://StemBioSys.com) or call us at **210-877-9323**.

# Need a Cell Expansion Tool?

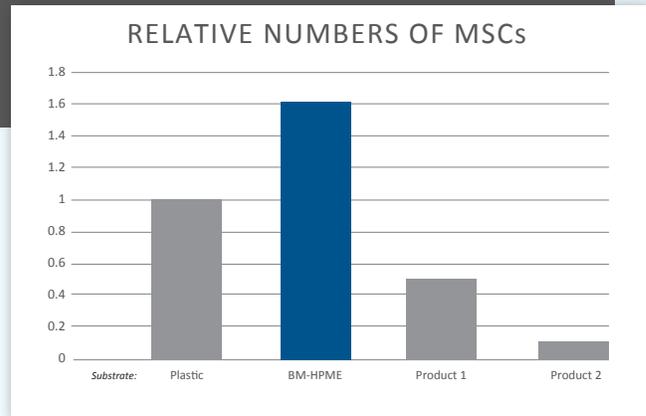
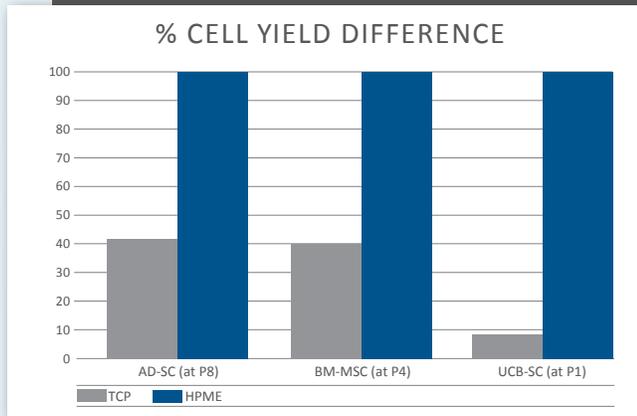
Mesenchymal stem cells grown on BM-HPME™:



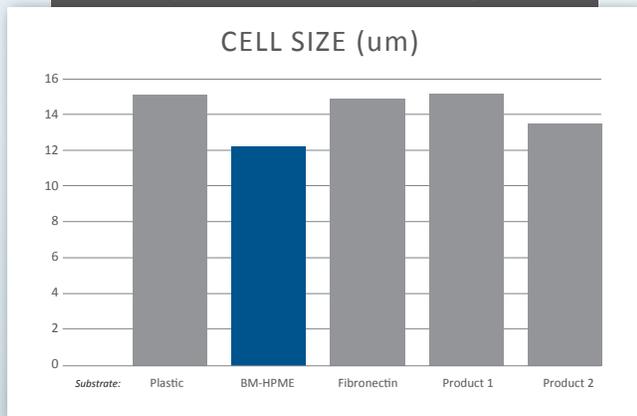
- Proliferate more rapidly
- Maintain a smaller cell size
- Exhibit a higher percentage of cells expressing SSEA-4.

BM-HPME is an advanced stem cell culture system that replicates the 3-dimensional “home” in which stem cells naturally reside and proliferate.

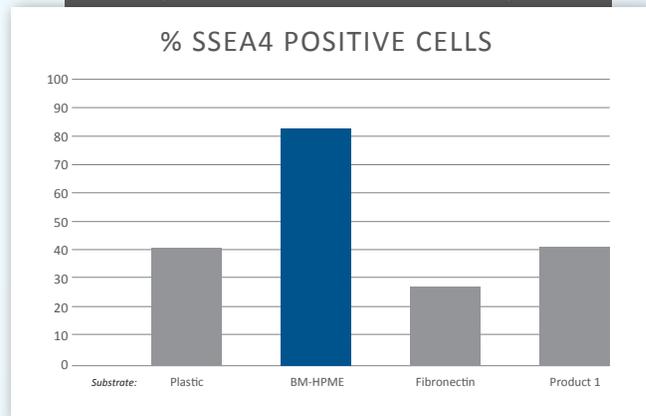
MORE CELLS



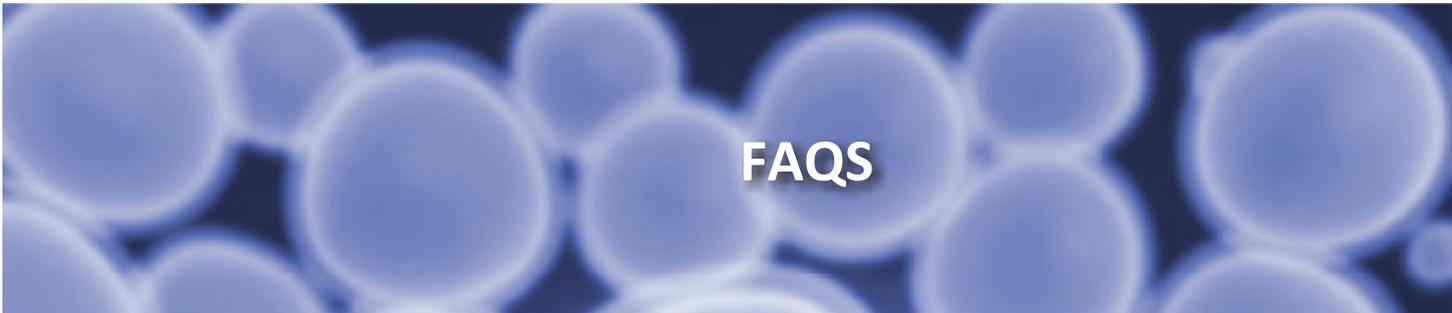
SMALLER SIZE



MORE STEMNESS



For more information please call **210-877-9323**  
or email [info@stembiosys.com](mailto:info@stembiosys.com)



## FAQS

**Q: How thick is BM-HPME®?**

The thickness of the BM-HPME® will vary but should be in the range of 5-40 micrometers.

**Q: Is the BM-HPME® robust enough to manipulate?**

No. The HPME® is a protein complex secreted by cells and is fragile.

**Q: What is the value of the BM-HPME® versus other comparable products?**

Head-to-head comparison with other commercially available substrates for stem cell growth has exhibited better growth (higher numbers and smaller size) of various stem cell types on BM-HPME® than other products.

**Q: How many proteins make up the BM-HPME®?**

Being cell derived, the ECM protein present in BM-HPME® is very complex. Research studies on this product by other laboratories has exhibited > 150 proteins present.

**Q: How does the BM-HPME® influence cell behavior and motility?**

The influence that BM-HPME® has on a cell will depend on the cell type. For MSCs, BM-HPME® increases cell proliferation, motility and decreases ECM protein synthesis.

**Q: Is the BM-HPME® like a 3-dimensional matrix?**

Yes. BM-HPME® is produced on a surface and has a thickness of approximately 5-40 micrometers.

**Q: What plane (on BM-HPME®) are the cells located?**

This depends on the cell type. Some cells will migrate and proliferate on the surface of the HPME while others will do so within or under the HPME.

**Q: How are cells removed from the HPME®?**

This may require some trial and error. Depending on the cell type, different enzymes may be more or less effective.

**Q: From what type of cells is the BM-HPME® derived?**

The BM-HPME® is produced by bone marrow stromal cells.

**Q: How long can you culture cells on BM-HPME®?**

Culturing cells beyond 100% confluence may result in lifting off of the matrix from the culture surface.

**Q: Is the product sterile?**

Yes, the BM-HPME® is sterile.

**Q: How do you store BM-HPME®?**

This product should be stored at refrigerated temperature (4-8 degrees C). Limited periods at room temperature will not affect the performance of the material.

**Q: What is the shelf life for BM-HPME®?**

The expiration date of the product is noted on each culture vessel.

**Q: Are there cells still attached to the BM-HPME®?**

No, the cells that produce the BM-HPME® are removed at the end of the process.

**Q: Is DNA present in the BM-HPME®?**

There may be very small amounts of residual DNA still present in the BM-HPME. If this is a concern for your studies we recommend a brief incubation in DNase prior to use.

## SUPPORT

Still can't find what you're looking for? Please [CLICK HERE](#) or call us at [210-877-9323](tel:210-877-9323).