

# PeproTech Cell Culture Media

# PeproGrow

Redefining Media Quality  
Utilizing PeproTech Cytokine Products



# Table of Contents

---

|                                                       |    |
|-------------------------------------------------------|----|
| PeproTech Cell Culture Media Products.....            | 3  |
| PeproGrow Animal-Free hESC Media Kits.....            | 4  |
| PeproGrow Animal-Free hESC Kit.....                   | 4  |
| PeproGrow Animal-Free Low Protein hESC Kit.....       | 4  |
| PeproGrow hESC Media .....                            | 8  |
| PeproGrow Endothelial Media.....                      | 10 |
| PeproGrow EPC Kit.....                                | 10 |
| PeproGrow MicroV Kit.....                             | 10 |
| PeproGrow MacroV Kit .....                            | 10 |
| PeproGrow <i>HEK293</i> Medium .....                  | 14 |
| PeproGrow CHO Media.....                              | 16 |
| PeproGrow CD-CHO .....                                | 16 |
| PeproGrow AF-CHO.....                                 | 16 |
| PeproGrow-1 Serum-Free Cell Culture Supplement Kit... | 18 |
| PeproGrow Media Products Chart .....                  | 20 |
| Cell Culture Glossary.....                            | 22 |

# PeproTech Cell Culture Media Products

## Redefining Media Quality Utilizing PeproTech Cytokine Products

**PeproTech** is a privately owned biotechnology company focused on the development and manufacturing of high quality cytokine products for the life science and cell therapy markets. As a leading researcher and manufacturer of cytokine products, PeproTech is pleased to offer media that contain our recombinant proteins and/or growth factors. These media formulations have been engineered by PeproTech's scientists and collaborators to provide the basic nutrients to grow and support several specific cell types.



The following Cell Culture Media Product information is available on our website at **[www.peprotech.com](http://www.peprotech.com)**:

- Complete List of Cell Culture Media Products\*
- Affordable and Competitive Product Prices
- Certificates of Analysis
- Instruction Manuals
- Frequently Asked Questions (FAQs)

\*Some media kit components are also available for individual purchase.

# PeproGrow Animal-Free hESC Media

Maintenance Media for hESCs and hiPSCs

PeproGrow Animal-Free hESC Medium and  
PeproGrow Animal-Free Low Protein hESC Medium



- Animal component-free, phenol red-free, insulin-free
- Complete and chemically-defined
- Animal-free basal media available as either a low protein medium or an albumin-containing medium
- High plating efficiency
- High quality recombinant growth factors from the leading manufacturer
- Developed in collaboration with and used in the Rutgers Stem Cell Training Course
- Based on the E8® formulation

PeproGrow Animal-Free hESC Medium and PeproGrow Animal-Free Low Protein hESC Medium are animal component-free, serum- and phenol red-free media of a complete, chemically-defined formulation designed for feeder-free maintenance and expansion of both human embryonic stem cells (hESCs) and human induced pluripotent stem cells (iPSCs). These media formulations are best used with PeproTech's Animal-Free Human Vitronectin Matrix as a surface-coating reagent; however, these can also be used with Corning Matrigel® or Synthemax® II-SC. The media are intended for the culturing of hESCs and iPSCs in the undifferentiated, pluripotent state (Nanog+/Lin28+/Tra-1-60+ or SSEA4+/Oct4+), and demonstrate less than 15% spontaneous differentiation as indicated by immunofluorescent staining. Similar to the PeproGrow hESC medium, these proprietary media formulations include relevant growth factors, such as FGF2 (FGF-basic), and do not contain the insulin found in the majority of other hESC/iPSC media currently available on the market. PeproGrow Animal-Free hESC Medium and PeproGrow Animal-Free Low Protein hESC Medium were designed and developed by PeproTech in collaboration with the Stem Cell Training Course at Rutgers University. These media contain the minimal, essential components required for stem cell culture maintenance and is developed in the likeness of the E8® formulation developed by the laboratory of Dr. James Thomson at the University of Wisconsin, Madison.\* These kits are supplied as a 100mL, or 500mL, bottle of basal medium, and a separate, lyophilized growth factor component. The basal medium is available as either a low-protein medium (catalog numbers AF-LP-hESC-500 and AF-LP-hESC-100), or an animal component-free albumin-containing medium (catalog numbers AF-hESC-R-500 and AF-hESC-R-100). Additional companion products, such as the Animal-Free Human Vitronectin Matrix and Buffer Kit, and the Cell Passaging/Non-Enzymatic Detachment Buffer, are available separately.

\* E8 is a registered trademark of the Wisconsin Alumni Research Foundation.

## PeproGrow Animal-Free hESC Medium Kit

| Kit Catalog Number: |                                            | AF-hESC-R-500    |                             |
|---------------------|--------------------------------------------|------------------|-----------------------------|
| For 500mL size      | <b>Basal Medium</b>                        | AF-BM-hESC-R-500 | 500mL                       |
|                     | <b>Animal-Free Growth Factor Component</b> | AF-GF-hESC-500   | Vial for 500mL Basal Medium |
| Kit Catalog Number: |                                            | AF-hESC-R-100    |                             |
| For 100mL size      | <b>Basal Medium</b>                        | AF-BM-hESC-R-100 | 100mL                       |
|                     | <b>Animal-Free Growth Factor Component</b> | AF-GF-hESC-100   | Vial for 100mL Basal Medium |

## PeproGrow Animal-Free Low Protein hESC Medium Kit

| Kit Catalog Number: |                                            | AF-LP-hESC-500    |                             |
|---------------------|--------------------------------------------|-------------------|-----------------------------|
| For 500mL size      | <b>Low Protein Basal Medium</b>            | AF-BM-LP-hESC-500 | 500mL                       |
|                     | <b>Animal-Free Growth Factor Component</b> | AF-GF-hESC-500    | Vial for 500mL Basal Medium |
| Kit Catalog Number: |                                            | AF-LP-hESC-100    |                             |
| For 100mL size      | <b>Low Protein Basal Medium</b>            | AF-BM-LP-hESC-100 | 100mL                       |
|                     | <b>Animal-Free Growth Factor Component</b> | AF-GF-hESC-100    | Vial for 100mL Basal Medium |

## Companion Products for PeproGrow Animal-Free hESC Media

### Animal-Free Human Vitronectin Matrix and Buffer Kit Catalog #AF-VMB-220

|                                             |       |
|---------------------------------------------|-------|
| <b>Animal-Free Human Vitronectin Matrix</b> | 500ug |
| <b>PBS + Kolliphor P 188</b>                | 220mL |

### Cell Passaging/Non-Enzymatic Detachment Buffer Catalog #CPD-125

|                                       |       |
|---------------------------------------|-------|
| <b>Buffer contains PBS+HEPES+EDTA</b> | 125mL |
|---------------------------------------|-------|



# PeperoGrow Animal-Free hESC Media (continued)

## PeperoGrow Animal-Free hESC Figures and Descriptions

Flow Cytometry of HFF cells derived from lentiviral reprogramming of human foreskin fibroblasts, and cultured in each medium and coating matrix as described. Similar flow cytometry results were also obtained with H1 hESCs.

Figure 1

**PeperoGrow Animal-Free Low Protein hESC Medium with PeperoTech Animal-Free Human Vitronectin Matrix**

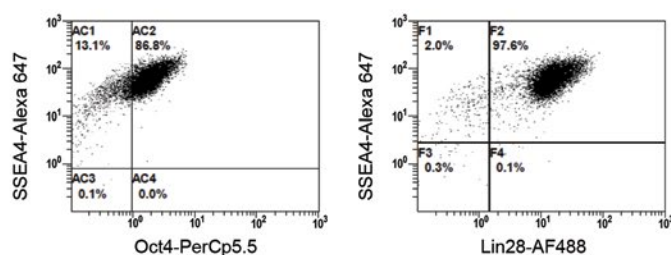


Figure 2

**PeperoGrow Animal-Free hESC Medium with PeperoTech Animal-Free Human Vitronectin Matrix**

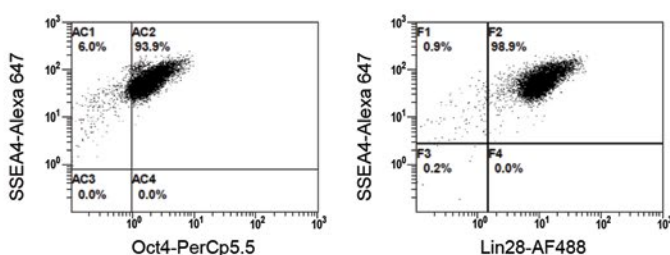


Figure 3

**Competitor Medium with PeperoTech Animal-Free Human Vitronectin Matrix**

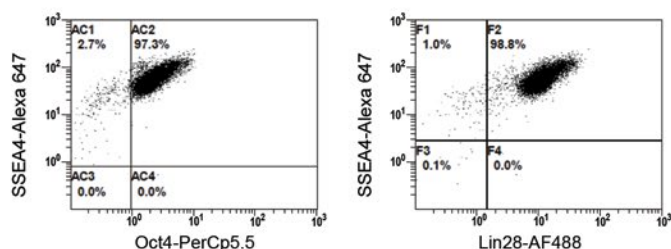
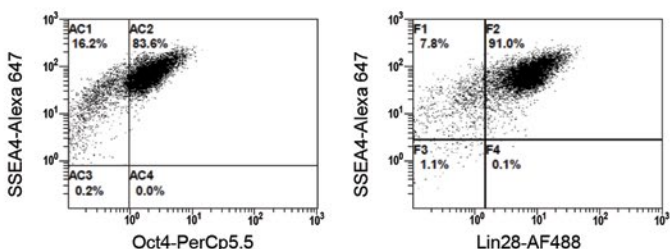


Figure 4

**PeperoGrow hESC Media with Corning Matrigel™**



For additional information please refer to the PeperoGrow Animal-Free hESC Media Instruction Manuals, which can be found on our website at [www.peprotech.com](http://www.peprotech.com).

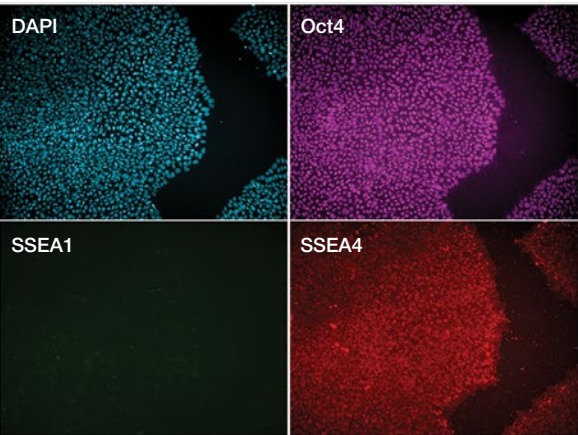


Immunostaining of pluripotent stem cells cultured in each medium below using PeproTech Animal-Free Human Vitronectin Matrix-coated plates/dishes.

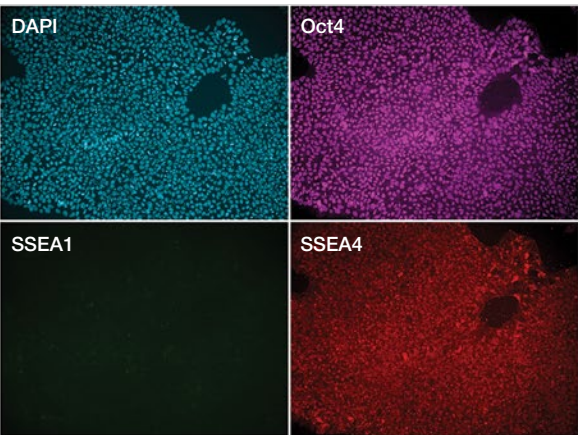
Figure 5

H1 hESCs

PeproGrow Animal-Free hESC Medium



PeproGrow Animal-Free Low Protein hESC Medium



Competitor Medium

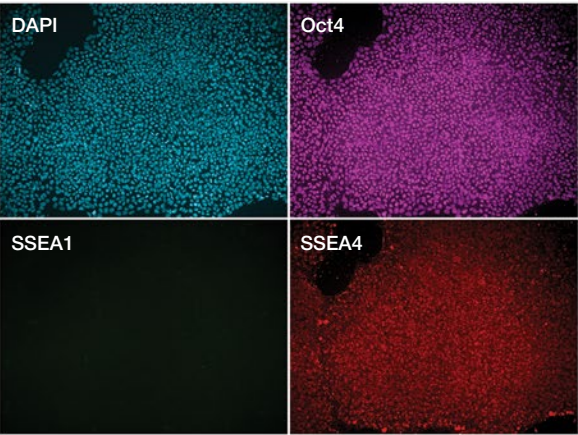
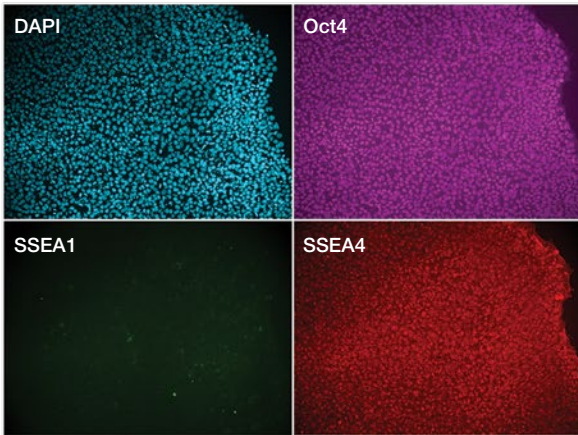


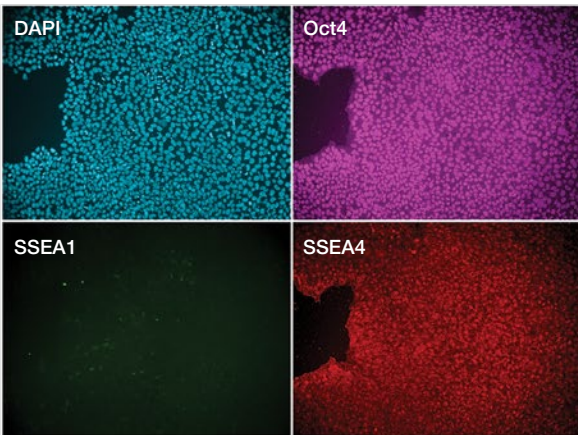
Figure 6

HFF iPSCs

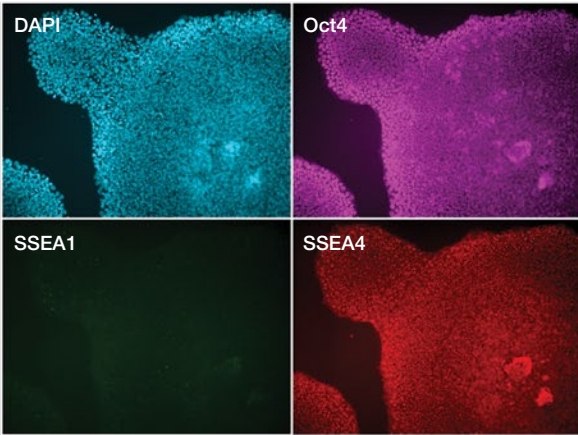
PeproGrow Animal-Free hESC Medium



PeproGrow Animal-Free Low Protein hESC Medium



Competitor Medium



# PeperoGrow hESC Medium

Maintenance Medium for hESCs and hiPSCs

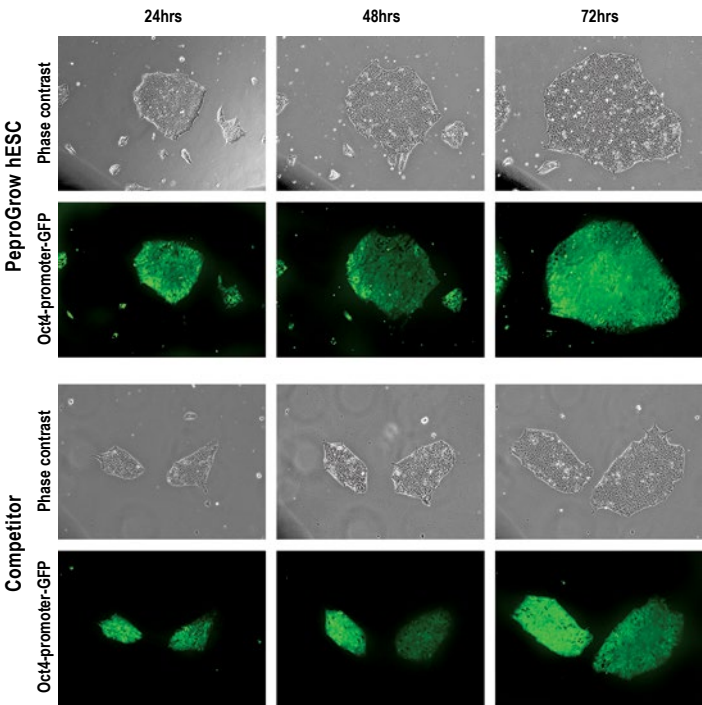


- Phenol red-free and insulin-free
- Complete and chemically-defined
- High plating efficiency
- High quality recombinant growth factors from the leading manufacturer
- Developed in collaboration with and used in the Rutgers Stem Cell Training Course



**PeproGrow hESC** is a serum- and phenol red-free medium of a complete, chemically-defined formulation designed for feeder-free maintenance and expansion of both human embryonic stem cells (hESCs) and induced pluripotent stem cells (iPSCs) using Corning Matrigel® as a surface-coating matrix. This medium is intended for the culturing of hESCs and iPSCs in the undifferentiated, pluripotent state (SSEA4+/Oct4+), and demonstrates less than 15% spontaneous differentiation as indicated by flow cytometry. The proprietary formulation of the medium includes relevant growth factors, such as FGF2 (FGF-basic), but does not contain the insulin found in the majority of other hESC/iPSC media currently available on the market. PeproGrow hESC, which was designed and developed by PeproTech in collaboration with the Stem Cell Training Course at Rutgers University, is supplied as a 100mL, or 500mL, bottle of basal medium and a separate, lyophilized growth factor component.

Figure 7



**The growth of H1 hESCs expressing turboGFP-NEO under the control of the Oct4 promoter.**

H1 hESCs modified by lentivirus to contain the Oct4 promoter driving turboGFP, were cultured in PeproGrow hESC medium, were passaged using dispase and plated in PeproGrow hESC medium containing 2 µM Y-27632 onto Corning Matrigel® coated 6 well dishes. Cultures were fed daily and photographed 24, 48, and 72 hours post split. Green fluorescence represents maintenance of pluripotency as indicated by Oct4 promoter activity. PeproGrow hESC maintains cells in the pluripotent state like the competitor media and allows the cells to plate out better (faster confluency).

Figure 8

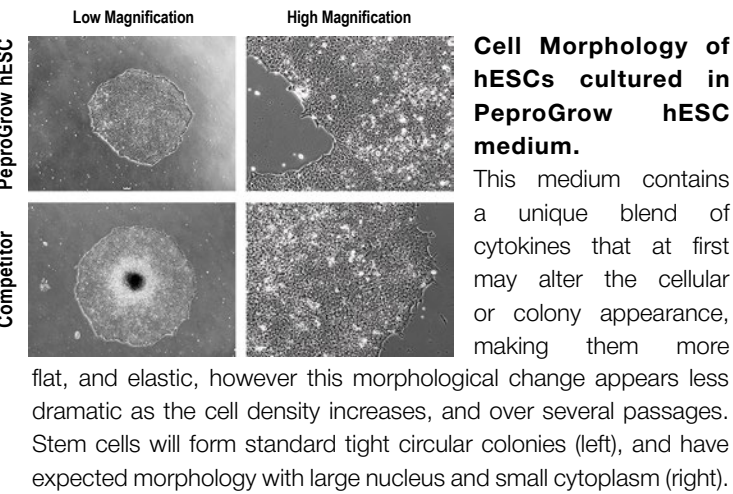
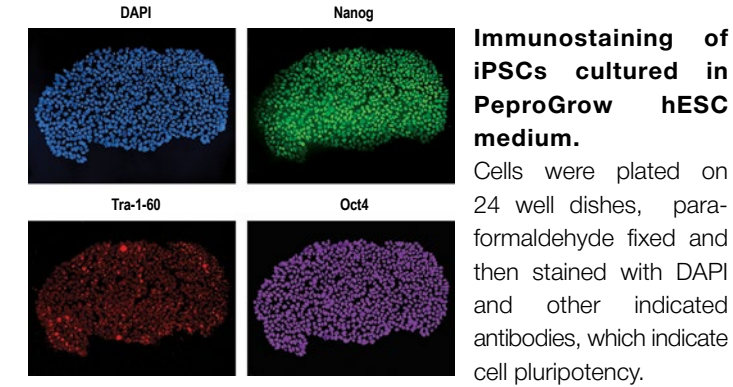


Figure 9



## Specifications:

|                   |              |
|-------------------|--------------|
| <b>Sterility</b>  | Negative     |
| <b>pH</b>         | 7.35-7.40    |
| <b>Osmolality</b> | 340-350 mOsm |

| <b>PeproGrow hESC</b> |                      |        |
|-----------------------|----------------------|--------|
| <b>PeproGrow hESC</b> | Catalog #BM-hESC-500 | 500 mL |
| <b>PeproGrow hESC</b> | Catalog #BM-hESC-100 | 100 mL |

# PeproGrow Endothelial Media

## Maintenance Media for Endothelial Cells

PeproGrow EPC, PeproGrow MacroV, and PeproGrow MicroV



- Complete media
- Antibiotic-free, antimycotics-free, antifungal-free, and phenol red-free
- Maintain outstanding endothelial cell morphology and function
- Increased activity of endothelial nitric oxide synthase (eNOS)

PeproTech offers three separate endothelial cell culture media formulations developed for the *in vitro* cultivation of: endothelial progenitor cells (EPCs; **PeproGrow EPC**) derived from bone marrow or peripheral blood; endothelial cells from large vessels (**PeproGrow MacroV**); and endothelial cells from small vessels (**PeproGrow MicroV**). These media formulations maintain outstanding endothelial cell morphology and function, and increase the activity of endothelial nitric oxide synthase (eNOS), which account for a specific, crucial marker for endothelial cells. By doing this, the media provide an optimal cell culture environment for macrovascular and microvascular endothelial cells, as well as for EPCs; growing cells at rates that exceed commercially available media.

PeproTech’s endothelial cell culture media kit is supplied as a 500mL bottle of basal medium and a separate growth supplement bottle that contains various essential growth factors and components for endothelial cell growth. Adding the growth supplement to the basal medium results in the complete culture medium. PeproTech’s endothelial media do not contain antibiotics, antimycotics, antifungals, or phenol red, as these components can cause cell stress and masking effects that may reduce complete medium shelf life and influence experimental results.



Media Products:

| PeproGrow EPC Kit ( <i>ENDO-BM &amp; GS-EPC</i> ) |         | Catalog #700-EPC |
|---------------------------------------------------|---------|------------------|
| Basal Medium                                      | ENDO-BM | 500mL            |
| Growth Supplement EPC                             | GS-EPC* | 75mL             |

| PeproGrow MacroV Kit ( <i>ENDO-BM &amp; GS-MacroV</i> ) |            | Catalog #700-MacroV |
|---------------------------------------------------------|------------|---------------------|
| Basal Medium                                            | ENDO-BM    | 500mL               |
| Growth Supplement MacroV                                | GS-MacroV* | 25mL                |

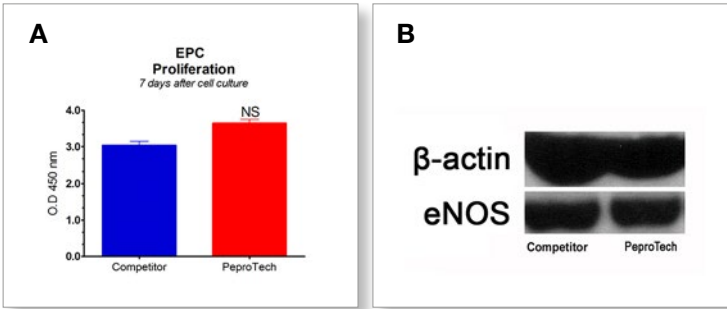
| PeproGrow MicroV Kit ( <i>ENDO-BM &amp; GS-MicroV</i> ) |            | Catalog #700-MicroV |
|---------------------------------------------------------|------------|---------------------|
| Basal Medium                                            | ENDO-BM    | 500mL               |
| Growth Supplement MicroV                                | GS-MicroV* | 35mL                |

\* Contains FBS

# PeptoGrow Endothelial Media (continued)

## Endothelial Cell Media Figures and Descriptions:

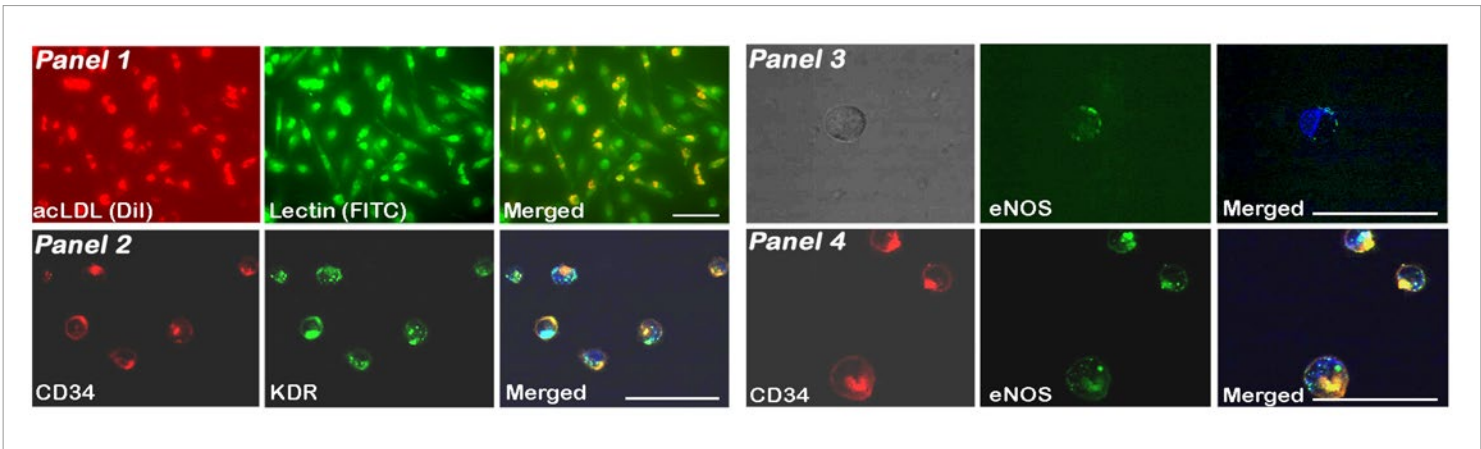
Figure 10



### Endothelial Progenitor Cell, EPC Proliferation.

EPCs were seeded onto fibronectin-coated plates, and incubated for 7 days in the PeptoGrow EPC Kit and a competitor's medium. Figure 10(A) represents the proliferative ability of EPCs assessed 7 days after cell cultivation using the XTT assay according to the manufacturer protocol. The proliferative ability of EPCs was expressed as the average optical density (O.D.) calculated using a plate reader for two independent assays run in triplicate. Figure 10(B) represents a standard Western Blot assay.

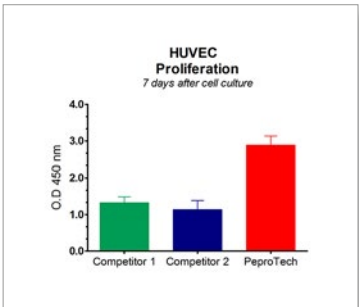
Figure 11



### Endothelial Progenitor Cell, EPC Characterization.

EPCs were cultured for 7 days. Each description correlates to images from left to right: Panel 1: Acetylated LDL uptake by adherent spindle-shaped EPCs, FITC-conjugated lectin UEA-1 binding to the surface of EPCs, and positive double-stained (merged image) EPCs for acetylated LDL uptake and lectin binding. Panel 2: Immunofluorescence detection of CD34 antigen (red), KDR (green) on the surface of EPCs, and merged image. Panel 3: Immunofluorescence detection of eNOS on a single non-stained EPC (green). Panel 4: Immunofluorescence detection of CD34 antigen on the EPCs surface (red), eNOS (green), and merged image. The EPCs nuclei were stained with the blue fluorescent DNA dye DRAQ5™.

Figure 12

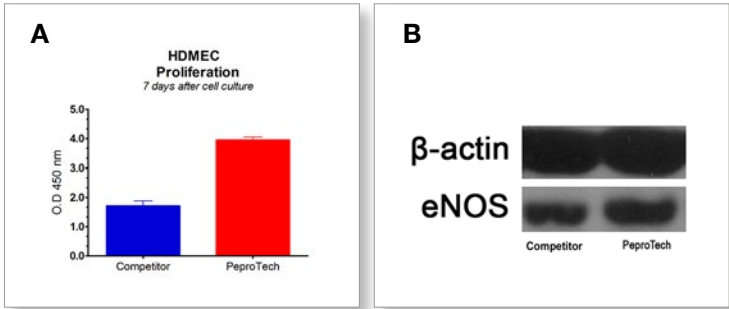


### Macrovascular Endothelial Cell, HUVEC Proliferation.

HUVECs were seeded onto fibronectin-coated plates and incubated for 7 days in the PeptoGrow MacroV Kit, and two competitors' media. The proliferative ability of HUVECs was assessed 7 days after cell cultivation using the XTT assay following the manufacturer's protocol. The proliferative ability of HUVECs was expressed as the average of optical intensity (O.D.) calculated using a plate reader from two independent assays run in triplicate.



Figure 13



**Microvascular Endothelial Cell, HDMEC Proliferation.**

HDMECs were seeded onto fibronectin-coated plates and incubated for 7 days in the PeproGrow MacroV Kit and a competitor's medium. Figure 13(A) represents the proliferative ability of HDMECs assessed 7 days after cell cultivation using the XTT assay following the manufacturer's protocol. The proliferative ability of HDMECs was expressed as the average of optical density (O.D.) calculated using a plate reader from two independent assays run in triplicate. Figure 13(B) represents a standard Western Blot assay.

Recommended Cell Types:

**PeproGrow EPC is recommended for Endothelial Progenitor Cells:**

Human Endothelial Progenitor Cells (hEPCs)

**PeproGrow MacroV is recommended for Macrovascular Endothelial Cells:**

- Human Umbilical Vein Endothelial Cells (HUVECs)
- Human Umbilical Artery Endothelial Cells (HUAECs)
- Human Aortic Endothelial Cells (HAoECs)
- Human Pulmonary Artery Endothelial Cells (HPAECs)
- Human Saphenous Vein Endothelial Cells (HSaVECs)

**PeproGrow MicroV is recommended for Microvascular Endothelial Cells:**

- Human Coronary Artery Endothelial Cells (HCAECs)
- Human Pancreatic Microvascular Endothelial Cells (HPaMECs)
- Human Dermal Microvascular Endothelial Cells (HDMECs)
- Human Pulmonary Microvascular Endothelial Cells (HPMECs)
- Human Dermal Lymphatic Endothelial Cells (HDLECs)
- Human Brain Microvascular Endothelial Cells (HBMECs)

Specifications:

|                          |                                           |
|--------------------------|-------------------------------------------|
| <b>Sterility</b>         | Absence of bacteria, mycoplasma and fungi |
| <b>pH</b>                | 7.4-7.8                                   |
| <b>Osmolality</b>        | 260-280 mOsm                              |
| <b>Endotoxin Testing</b> | <0.5 EU/mL                                |

# PeperoGrow *HEK293* Medium

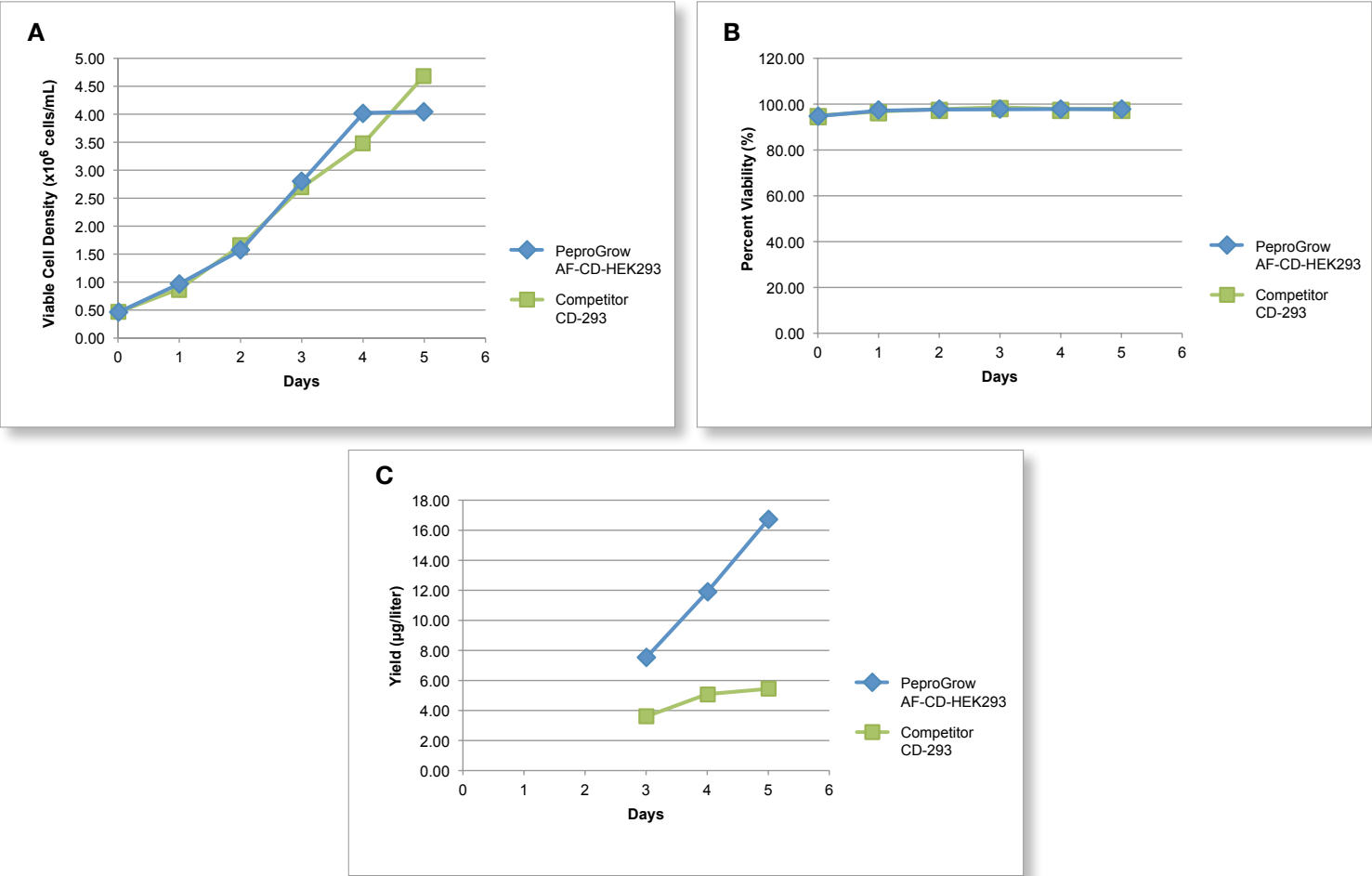
Maintenance Medium for Human *HEK293* Cells



- Animal component-free, serum-free, protein-free, chemically-defined medium
- Complete medium containing L-alanyl-L-Glutamine for direct product use
- High recombinant protein expression

**PeproGrow HEK293** is an animal component-free, protein-free, serum-free, chemically-defined, complete medium formulation for the *in vitro* cultivation of HEK293 cells (Thermo Fisher Scientific FreeStyle™ 293-F cells, catalog number R790-07). This medium is intended for recombinant protein expression in suspension culture, which is recommended for a 5 day batch culture with a seeding density of 0.6 x10<sup>6</sup> cells/mL. This ready-to-use medium contains L-alanyl-L-Glutamine, amino acids, vitamins, and salts. An adaptation process is not required for Thermo Fisher Scientific FreeStyle™ 293-F cells.

Figure 14



Figures 14 (A, B, C) illustrate HEK293 BMP-6 expression in PeproGrow HEK293 medium and competitor CD-293 medium.

# PeproGrow CHO Media

Maintenance Media for CHO-S cell lines

PeproGrow CD-CHO and PeproGrow AF-CHO

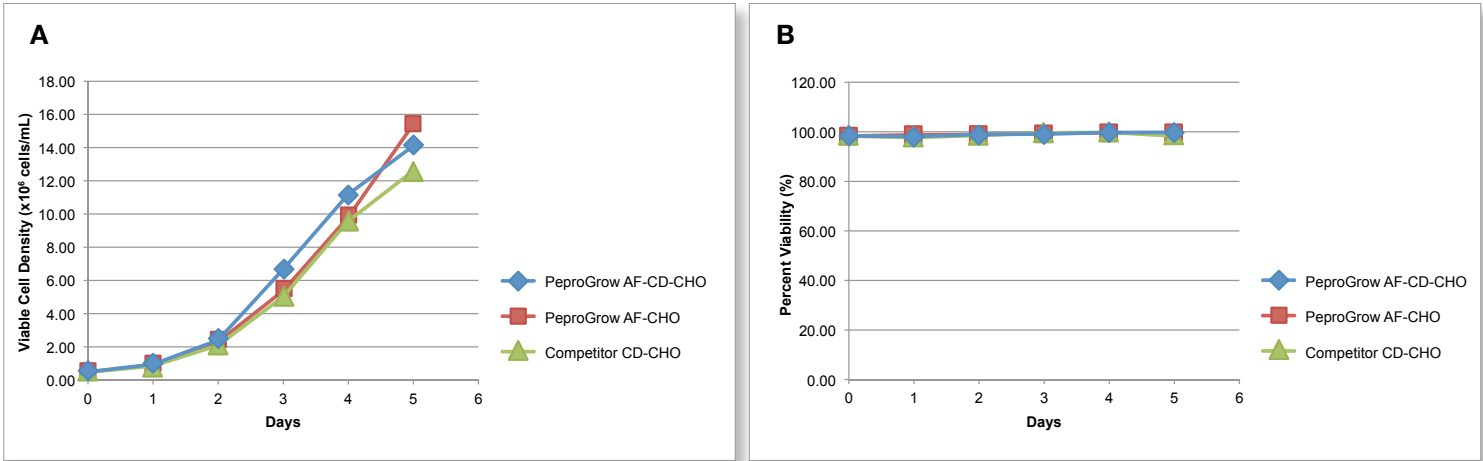


- CD-CHO medium (Catalog #AF-CD-CHO): animal component-free, serum-free, protein-free, and chemically-defined
- AF-CHO medium (Catalog #AF-CHO): animal component-free, serum-free, and protein-free
- Complete medium containing L-alanyl-L-Glutamine for direct product use
- High recombinant protein expression



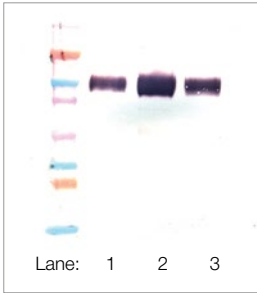
PeproTech offers two CHO media, **PeproGrow CD-CHO** and **PeproGrow AF-CHO**, for the *in vitro* cultivation of Chinese Hamster Ovary-S cells (Thermo Fisher Scientific catalog numbers 11619-012, R800-07, or A11557-01). This medium is intended for recombinant protein expression in suspension culture. PeproGrow CD-CHO is an animal component-free, serum-free, protein-free, chemically-defined, complete medium formulation. PeproGrow AF-CHO is an animal component-free, serum-free, protein-free, complete medium formulation. Both ready-to-use media contain L-alanyl-L-Glutamine, amino acids, vitamins and salts, which are recommended for a 5 day batch culture with a seeding density of  $0.5 \times 10^6$  cells/mL. PeproGrow AF-CHO also contains non-animal derived hydrolysates. An adaptation process is not required for Thermo Fisher Scientific CHO-S cells.

Figure 15



Figures 15 (A, B) illustrate CHO-S cell density and percent viability of C1 Inhibitor producing cells in PeproGrow CD-CHO, PeproGrow AF-CHO, and competitor CD-CHO. Cell expression varies by protein product.

Figure 16



The western blot illustrates CHO-S cell culture sample production of C1 Inhibitor post 5 days.

- lane 1: PeproGrow CD-CHO
- lane 2: PeproGrow AF-CHO
- lane 3: Commercial CD-CHO

| PeproGrow CHO Media |                    |     |
|---------------------|--------------------|-----|
| PeproGrow CD-CHO    | Catalog #AF-CD-CHO | 1 L |
| PeproGrow AF-CHO    | Catalog #AF-CHO    | 1 L |

# PeptoGrow-1 Serum-Free Cell Culture Supplement Kit

Serum-free cell culture supplement kit for adherent *HEK293*, HeLa, and A549 cells



- Serum-free, animal-free, and protein-free medium supplement
- Chemically-defined medium supplement

**PeproGrow-1** (catalog number 700-C100) is a serum-free cell culture media supplement formulation designed to sustain the growth of adherent mammalian cell lines, and has been tested with *HEK293*, HeLa, and A549 cells. This kit may potentially improve the culturing conditions of other adherent cells, however suitability for cells other than those pre-tested is not guaranteed. PeproGrow-1 is an animal component-free, protein-free, chemically-defined formulation. This kit is intended to be used with DMEM/F12 basal media (Thermo Fisher Scientific catalog #10565, or catalog #31331 for customers located outside the USA) and contains enough material to supplement 10L of media.

**Note:** DMEM/F12 media can contain phenol red, or phenol red can be added at the customer's discretion. DMEM/F12 media should not contain HEPES. Another vendor's DMEM/F12 can be purchased, however, PeproTech only tests PeproGrow-1 (Catalog # 700-C100) using Thermo Fisher Scientific DMEM/F12.

## PeproGrow-1 Serum-Free Cell Culture Supplement Kit Components:

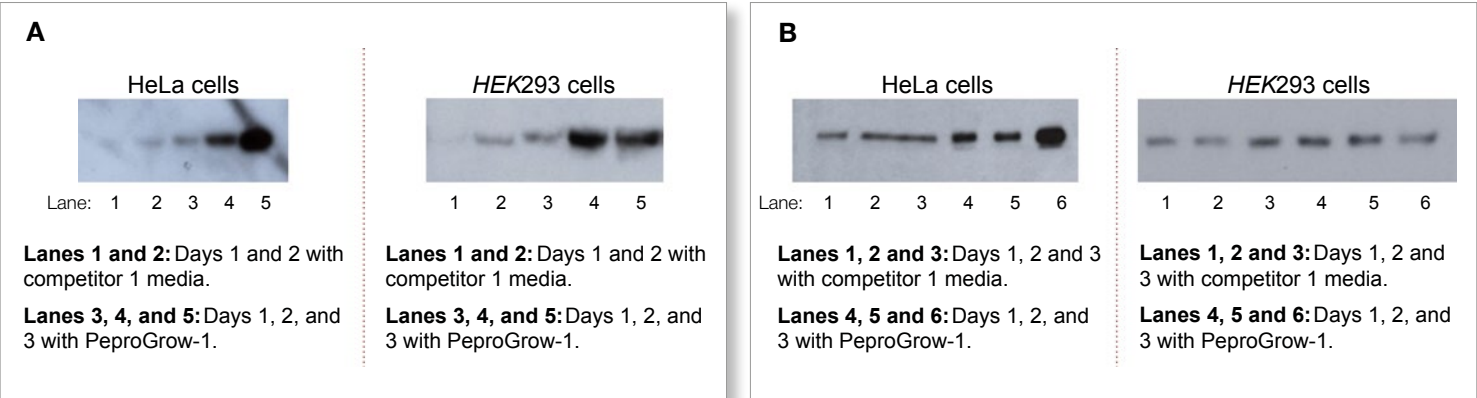
- Serum Replacement Solution (Catalog #SR-100):**

This 100x serum replacement solution contains non-animal derived, chemically-defined salts, designed to replace serum in *HEK293*, HeLa, and A549 cell culture media.

- Lipid Mixture Solution (Catalog #LM-200):**

This 200x lipid mixture solution contains non-animal derived fatty acids and lipids, designed to improve cell growth in serum-free media.

Figure 17



Western blot for Human TLR-3 production using PeproGrow-1 Serum-Free Cell Culture Supplement Kit

Western blot for Human sDLL-1 production using PeproGrow-1 Serum-Free Cell Culture Supplement Kit

| PeproGrow-1 Kit ( <i>SR-100 &amp; LM-200</i> ) | Catalog #700-C100 |
|------------------------------------------------|-------------------|
| Serum Replacement Solution                     | SR-100            |
| Lipid Mixture Solution                         | LM-200            |

# PeperoGrow Media Products Chart

| Media                                                                                                                          | Cell Type(s)                                                                              | Culture Type | Complete | Chemically-Defined |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------|----------|--------------------|
| <b>PeperoGrow-1 Kit</b> ( <i>LM-200 &amp; SR-100</i> )<br>Lipid Mixture Solution<br>Serum Replacement Solution                 | HeLa, HEK293, A549                                                                        | Adherent     |          | ✓                  |
| <b>CHO Media</b><br><b>PeperoGrow CD-CHO</b>                                                                                   | Thermo Fisher Scientific CHO-S cell lines (Catalog numbers 11619-012, R800-07, A11557-01) | Suspension   | ✓        | ✓                  |
| <b>PeperoGrow AF-CHO</b>                                                                                                       | Thermo Fisher Scientific CHO-S cell lines (Catalog numbers 11619-012, R800-07, A11557-01) | Suspension   | ✓        |                    |
| <b>HEK293 Media</b><br><b>PeperoGrow HEK293</b>                                                                                | Thermo Fisher Scientific FreeStyle™ 293-F cells (Catalog number R790-07)                  | Suspension   | ✓        | ✓                  |
| <b>Human ESC Media</b><br><b>PeperoGrow hESC</b>                                                                               | Human ESCs and Human iPSCs                                                                | Adherent     | ✓        | ✓                  |
| <b>PeperoGrow Animal-Free hESC Kit</b>                                                                                         | Human ESCs and Human iPSCs                                                                | Adherent     | ✓        | ✓                  |
| <b>PeperoGrow Animal-Free Low Protein hESC Kit</b>                                                                             | Human ESCs and Human iPSCs                                                                | Adherent     | ✓        | ✓                  |
| <b>Companion Products for Human ESC Media</b>                                                                                  |                                                                                           |              |          |                    |
| <b>Animal-Free Human Vitronectin Matrix and Buffer Kit</b><br>Animal-Free Human Vitronectin Matrix<br>PBS+ Kolliphor P 188     |                                                                                           |              |          |                    |
| <b>Cell Passaging/Non-Enzymatic Detachment Buffer</b><br>PBS+HEPES+EDTA                                                        |                                                                                           |              |          |                    |
| <b>Endothelial Media</b><br><b>PeperoGrow EPC Kit</b> ( <i>ENDO-BM &amp; GS-EPC</i> )<br>Basal Medium<br>Growth Supplement EPC | Human Endothelial Progenitor Cells                                                        | Adherent     | ✓        |                    |
| <b>PeperoGrow MacroV Kit</b> ( <i>ENDO-BM &amp; GS-MacroV</i> )<br>Basal Medium<br>Growth Supplement MacroV                    | Human Macrovascular Endothelial Cells                                                     | Adherent     | ✓        |                    |
| <b>PeperoGrow MicroV Kit</b> ( <i>ENDO-BM &amp; GS-MicroV</i> )<br>Basal Medium<br>Growth Supplement MicroV                    | Human Microvascular Endothelial Cells                                                     | Adherent     | ✓        |                    |

\*Select media products have individual components available for purchase.



| Animal-Free | Serum-Free | Protein-Free | Catalog Number                             | Size                         | Additional Note(s)                                                                                                                                                                                                    |
|-------------|------------|--------------|--------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ✓           | ✓          | ✓            | <b>700-C100*</b><br>LM-200<br>SR-100       | <b>Kit</b><br>55mL<br>100mL  | This product is a Serum-Free Cell Culture Supplement Kit to be used in conjunction with DMEM/F-12 basal media (Thermo Fisher Scientific Catalog #10565, or use Catalog #31331 for customers located outside the USA). |
| ✓           | ✓          | ✓            | AF-CD-CHO                                  | 1L                           | Ready-to-use.                                                                                                                                                                                                         |
| ✓           | ✓          | ✓            | AF-CHO                                     | 1L                           | Ready-to-use. Contains non-animal derived hydrolysates.                                                                                                                                                               |
| ✓           | ✓          | ✓            | AF-CD-HEK293                               | 1L                           | Ready-to-use.                                                                                                                                                                                                         |
|             | ✓          |              | BM-hESC-500<br>BM-hESC-100                 | 500mL<br>100mL               | Phenol red-free. Supplied with a lyophilized growth factor component.                                                                                                                                                 |
| ✓           | ✓          |              | <b>AF-hESC-R-500*</b>                      | <b>Kit / 500mL</b>           | Phenol red-free. Supplied with a lyophilized growth factor component. This basal medium contains an animal component-free albumin. This medium has additional companion products available for purchase.              |
|             |            |              | <b>AF-hESC-R-100*</b>                      | <b>Kit / 100mL</b>           |                                                                                                                                                                                                                       |
| ✓           | ✓          |              | <b>AF-LP-hESC-500*</b>                     | <b>Kit / 500mL</b>           | Phenol red-free. Supplied with a lyophilized growth factor component. This medium has additional companion products available for purchase.                                                                           |
|             |            |              | <b>AF-LP-hESC-100*</b>                     | <b>Kit / 100mL</b>           |                                                                                                                                                                                                                       |
|             |            |              | <b>AF-VMB-220</b>                          | <b>Kit</b><br>500µg<br>220mL |                                                                                                                                                                                                                       |
|             |            |              | <b>CPD-125</b>                             | <b>Kit</b><br>125mL          |                                                                                                                                                                                                                       |
|             |            |              | <b>700-EPC*</b><br>ENDO-BM<br>GS-EPC       | <b>Kit</b><br>500mL<br>75mL  | Growth Supplement EPC supplied as a frozen bottle.                                                                                                                                                                    |
|             |            |              | <b>700-MacroV*</b><br>ENDO-BM<br>GS-MacroV | <b>Kit</b><br>500mL<br>25mL  | Growth Supplement MacroV supplied as a frozen bottle.                                                                                                                                                                 |
|             |            |              | <b>700-MicroV*</b><br>ENDO-BM<br>GS-MicroV | <b>Kit</b><br>500mL<br>35mL  | Growth Supplement MicroV supplied as a frozen bottle.                                                                                                                                                                 |

# Cell Culture Glossary

---

---

**A** **Adherent Cell Culture:** Cells that form a single layer on an artificial substrate system in a medium, such as in a T-flask or a roller bottle.

**Adult Stem Cell:** A stem cell in the adult system that is in an undifferentiated state and maintains the ability to differentiate, generally into a cell type from its tissue of origin.

**Animal-Free Medium:** The medium does not contain animal-derived components.

**Aseptic Technique:** Procedures that are performed under sterile conditions. This prevents the introduction of fungi, bacteria, viruses, mycoplasma or other microorganisms into cell culture or other laboratory culturing conditions. These procedures may also prevent cell cross-contamination.

---

**B** **Basal Medium:** An incomplete simple cell culturing medium that does not contain supplemental nutrients or growth factors.

**Blastocyst:** This is the early stage of an embryo composed of a fluid filled cavity, an inner cell mass, and an outer cell mass. Embryonic stem cells are derived from the inner cell mass, while the outer cell mass forms the trophoblast.

---

**C** **Cellular Differentiation:** The process that occurs when a cell becomes specialized for a particular cell type and its function(s).

**Chemically-Defined Medium:** The chemicals contained in the medium are known and quantifiable. This medium does not contain yeast, animal or plant protein hydrolysates.

**Complete Medium:** All the necessary components/nutrients for the cell type are present for culturing.

---

**D** **Defined Medium:** This is also known as chemically-defined medium. All the chemicals and quantities of the medium content are known.

---

---

**G Growth Supplement:** This is an additional supplement that PeproTech supplies with some media products and the researcher adds this to the medium upon use, which contains growth factors/proteins necessary for the particular cell type's growth. The addition of the growth supplement results in the complete medium.

---

**H Human Embryonic Stem Cell:** A pluripotent stem cell that is derived from the inner cell mass of a blastocyst and can differentiate into different cell types.

---

**I Induced Pluripotent Stem Cell (iPSC):** A stem cell that has been reprogrammed from an adult cell and has the ability to differentiate into other cell types.

---

**M Medium/Media (plural form of medium):** The liquid solution or growth medium to grow and cultivate a particular cell type.

---

**P Pluripotent Stem Cell:** A stem cell that is derived from the inner cell mass of the blastocyst and can differentiate into different cell types.

**Progenitor Cell:** A cell that can differentiate, but cannot renew itself. Generally, a progenitor cell is at a further stage of differentiation.

**Protein-Free Medium:** The medium does not contain protein, such as insulin, transferrin, albumin, and other protein growth factors.

---

**S Serum-Free Medium:** The medium does not contain serum.

**Suspension Cell Culture:** Cells that are free floating in a medium, such as in a shaker flask on an orbital shaker, or a stirred tank bioreactor.

---

**U Undefined Medium:** The medium may contain ingredient(s), such as a yeast extract, and animal or plant protein hydrolysates, in which the mixture of the chemical reagents is in unknown proportions.

---

**X Xeno-Free Medium:** By some definitions xeno-free medium does not contain animal products, i.e., all the components are of non-animal origin. A xeno-free product may contain human-derived reagents.

---



[www.peprotech.com](http://www.peprotech.com)



5 Crescent Avenue  
P.O. Box 275  
Rocky Hill, NJ 08553  
United States

Phone: (800) 436-9910 | (609) 497-0253  
Fax: (609) 497-0321

[info@peprotech.com](mailto:info@peprotech.com)  
[sales@peprotech.com](mailto:sales@peprotech.com)