

## Datasheet

# Endopan PRO

## Special Medium Formulation for Progenitor Endothelial Cells

Product	Description	Catalogue-No.	Size
<b>Endopan PRO</b> <i>ready-to-use</i>	Complete Special Medium for Human Progenitor Endothelial Cells	<b>P04-00700</b>	500 ml
<b>Endopan PRO</b> <i>kit</i>	Special Medium for Human Progenitor Endothelial Cells, Basal medium + 6 Supplements	<b>P04-0070K</b>	500 ml

### Product description

Endothelial cells line blood and lymphatic vessels and the internal cavities of the heart. They display a flattened, polygonal form and mostly rest on a basal membrane. They adhere to each other by desmosomes and tight-junctions. With a total cell number of about  $10^{12}$ , the endothelium is one of the biggest organs of the body and plays a key role in many physiological and patho-physiological processes (e.g. cell-based immune response, wound healing, inflammation, allergy, cardiovascular diseases, tumor growth). A number of factors control proliferation and apoptosis of endothelial cells, thereby regulating maintenance, degeneration, or regeneration of blood vessels.

New blood vessel formation occurs via angiogenesis or vasculogenesis, a process restricted to embryonic development. In 1997, postnatal vasculogenesis has been proposed as an important mechanism for angiogenesis via blood or bone marrow derived circulating progenitor endothelial cells (PEC) (Asahara et al, Science 1997). From thereon, PECs have been extensively studied as potential cell therapy for the repair of damaged blood vessels. Animal studies clearly demonstrated that administration of PECs partially rescued cardiovascular dysfunction or myocardial injury with evidence for PEC contribution to new vessel growth.

In most studies, PECs were defined by cell surface expression of CD34, CD133, or VEGF-R2 (KDR). Because these molecules are also present on hematopoietic progenitor cells, a contamination with hematopoietic lineage cells may be expected. More recently, a PEC population has been identified which shows expression of typical endothelial markers and progenitor markers (Ingram et al, Blood. 2004). Importantly, these cells have been also tested for a high proliferative potential in clonogenic assays and characterized by formation of functional blood vessels in vivo (Yoder et al, Blood. 2007).

### Content

**Endopan PRO kit** contains the following components in single packing

- FBS
- Vitamin C (Ascorbic Acid phosphate)
- R3-IGF-1 (human recombinant Insulin-like Growth Factor)
- GA (Gentamicin/Amphotericin)
- Hydrocortisone
- Heparin

### **Storage conditions and stability**

Endopan PRO basal medium is stable for 12 months (2 – 8 °C) and Endopan PRO growth supplements are guaranteed stable for 12 months when properly stored at -20°C.

Endopan PRO ready-to-use (basal + supplements) is stable for 3 months when stored in the dark at 2-8°C. Do not freeze Endopan PRO ready-to-use or basal medium.

### **Suitability**

Endopan PRO is suitable for the culture of Human Umbilical Cord Blood Progenitor Endothelial Cells, Human Adult Peripheral Blood Progenitor Endothelial Cells, Human Bone Marrow-derived Progenitor Endothelial Cells.

**WARNING:** Endopan PRO is not suited for stopping trypsin reaction. Please use Accutase (P10-21100) for detaching cells from culture vessels. If using trypsin, stop the tryptic activity with trypsin inhibitor (P10-033100) solution or FBS to neutralize trypsin. To avoid damage to cells, progenitor endothelial cells should be exposed only for a minimum period of time to trypsin.

### **Instructions for use**

**Endopan PRO ready-to-use** (P04-00700) is a specially developed medium for the *in vitro* culture of human progenitor endothelial cells (hPEC) containing all components necessary for optimal colony formation, clonogenic growth, and rapid proliferation. It is designed for use in an incubator at 37° C with a 5% CO<sub>2</sub> atmosphere. Please avoid repeated warming of complete medium. Prepare only the amount needed in a separate sterile tube. For a T25 cell culture flask it is recommended to use 5 ml of Endopan PRO. For smaller or larger culture area, please adjust volume accordingly. After thawing of cells, change the medium after 24 h to remove unattached cells; for maintenance and propagation, change the medium every two or three days. For cultures close to confluence or for maximum proliferative response, it is recommended to use more medium or more frequent changes.

**Endopan PRO kit** (P04-0070K) is provided with FBS growth supplement (pre-screened and tested for progenitor cells) and additional supplements in separate sterile packing. This will enable the user to prepare a medium for special application. For example, FBS or other components may be omitted from the complete medium for specific experimental settings. Please note that such a formulation will not promote optimal cell growth. Therefore, this composition can not be used for routine long-term culture of endothelial cells. Please make sure that sterility is not compromised when adding individual components to prepare complete medium. The medium should be carefully but thoroughly mixed after addition of all components to assure a homogeneous solution

### **References**

- a) Asahara T et al. (1997) Isolation of putative progenitor endothelial cells for angiogenesis. *Science* 275:964
- b) Ingram A.D et al. (2004) Identification of a novel hierarchy of endothelial progenitor cells using human peripheral and umbilical cord blood. *Blood* 104:2752
- c) Yoder C. M et al. (2007) Redefining endothelial progenitor cells via clonal analysis and hematopoietic stem/progenitor cell principals. *Blood* 109:1801

### **Technical support**

For technical support, questions or remarks please contact your local PAN-Biotech partner or the technical department of PAN-Biotech via email ([info@pan-biotech.com](mailto:info@pan-biotech.com)) or phone +49-8543-601630.

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