THT Biomaterials GmbH
extracellular platform technology
The Human Touch

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Product information

HUMAN PLACENTA Substrate (hpS)
Comprising highly purified ECM and bioactive proteins, prepared from placenta basal tissue of individuals that have been shown by certified tests to be negative for antibodies to HIV, HEP-B and THPA (syphilis).

Catalog Number THT0301

Product description
The extracellular matrix (ECM) is nature's ideal environment for growth and cultivation of human cells. Especially basal membrane (BM) proteins modulate a wide range of fundamental key mechanisms in development, function and homeostasis of human cells.
HUMAN PLACENTA Substrate (hpS) contains BM proteins such as laminin-111 as the major component (around 80-90%), collagen-4 (around 10%), bioactive growth factors, 0.4-0.8 IU thrombin/mL and other minor components. It contains 50 µg/mL gentamycin to prevent aerobic and anaerobic microbial growth.
hpS is liquid and prepared at a concentration of 1,5 mg/mL. It does not gel at 37°C. However, addition of fibrinogen, collagen-1 or other polymers (e.g. F127) can be used for polymerization.
HUVEC cells show vasculogenesis within two days when grown on hpS. PC-12 cells show neurite formation within two days when grown on hpS.

Precautions and Disclaimer
This product is only for R&D use. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling procedures.

Storage/Stability
Delivery on dry ice. Following reconstitution, aliquot and freeze. Store hpS stock solutions at -20°C for up to 2 months, or -80°C for up to 12 months).

Procedure
Note: The optimal concentration for cell attachment and culture may differ for different cell types, and experimentation may be required to determine the optimal conditions for your personal cell culture settings.

Guideline for 2D coating tissue culture plates
1. Add sufficient volume of hpS to provide your desired coating concentration. If necessary, dilute your hpS stock with PBS buffer or cell culture media. A coating concentration of at least 10 µg/cm^2 is recommended, depending on the cell type used and your experimental settings. It is important that the volume added to the well is sufficient to cover the whole growth surface.
2. Keep the plate completely covered and incubate for 2 h at 37°C.
3. Plates are now ready for use.

Guidelines for 3D gelling
1. Mix hpS to your desired gel concentration using e.g. fibrinogen, collagen-1 or synthetic polymers and dilute with cell culture media or PBS.
2. Add the mixture to your tissue culture plate.
3. Incubate the plate for 2 h at 37°C.
4. Plates are now ready for use.

References
1. Hackethal J, Weihs AM, Hofer A, Karner L, Metzger M., Dungel P, Hennerbichler S, Redl H, Teuschl AH. *Novel human placenta-based extract for vascularization strategies in tissue engineering*. TERMIS EU 2019, Rhodes, Greece.
2. Hackethal J, Hennerbichler S, Redl H, Teuschl AH. *A comparison of enzymatic and non-enzymatic strategies to isolate extracellular matrix (ECM) proteins from human placenta and liposuction fat*. ALTEX Proceedings 8(1), p65, 2019.