



THT Biomaterials GmbH
extracellular platform technology
The Human Touch

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Guidelines for use

Product: HUMAN PLACENTA Substrate (hpS), 10 mL vial. Useful as a gel or coating for the attachment and growth of cells.

Catalog Number (CAS): THT0301

Revision: 14.10.2020

Form: liquid (please refer to vial label for lot-specific protein concentration).

Background: the extracellular matrix (ECM) is nature's ideal environment for human cells. ECM modulates a wide range of fundamental mechanisms in development, function, and homeostasis of cells.

Human placenta substrate (hpS) contains ECM proteins such as laminin-111 as the major component (around 80-90%), collagen-4 (around 10%), bioactive growth factors and other minor components.

hpS is prepared to a protein concentration of 1-2 mg/mL in PBS. It is liquid and will not gel at room temperature or 37°C. Addition of fibrinogen, collagen-I or other polymers 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. This product is treated with chloroform and contains 50 µg/mL gentamycin to prevent aerobic and anaerobic microbial growth. hpS is compatible with all cell culture media.

Source: prepared from pooled human placenta tissue of individuals that have been shown by certified tests to be negative for antibodies to HIV, HEP-B and TPHA (syphilis).

Storage/Stability: hpS is delivered on dry ice. It may be stored at -20 °C for up to 2 months. Store at -80 °C for long-term storage. Freeze thaws should be minimized by an initial thaw, aliquoting into one time-use aliquots and freeze. DO NOT STORE IN FROST-FREE FREEZER. KEEP FROZEN.

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

Toxicity: standard laboratory handling.



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Procedure to use:

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 cell culture experiments.

Guideline for 2D coating tissue culture plates

1. Thaw hpS on ice and resuspend with a pipette. Dispense hpS into appropriate working aliquots using pre-cooled pipet tips, vials or tubes. If necessary, dilute hpS stocks with PBS buffer or cell culture media. Dilutions or other preparations using hpS should be made before hpS is added to well plates.
2. Keep the growth surface completely covered (e.g. 50 μ L for 96 well) and incubate for 2 h at 37°C.
3. Plates are now ready for use.

Guidelines for gelling

hpS will not form a gel at room temperature or 37°C. To use hpS as a gel, it can be mixed with natural polymers (e.g. collagen-I, fibrinogen) or synthetical polymers (e.g. Pluronic F127). Incubate the gel at 37°C. Gel is then ready for use but must be handled carefully.

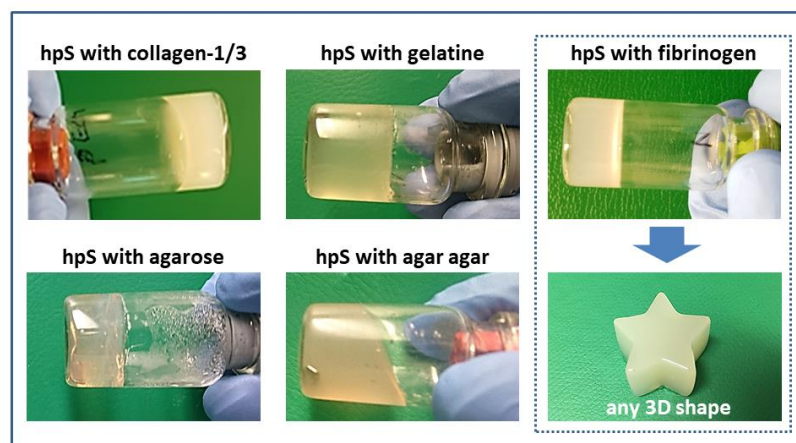


Figure 1: 3D solidification of hpS. Various polymers were mixed with hpS to form stable 3D gels.

References

1. Hackethal J, Weihs AM, Hofer A, Karner L, Metzger M., Dungal 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.

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