Product Data Sheet

hPCMA – Human Methacryloyl Placenta

Catalogue Number: PC01

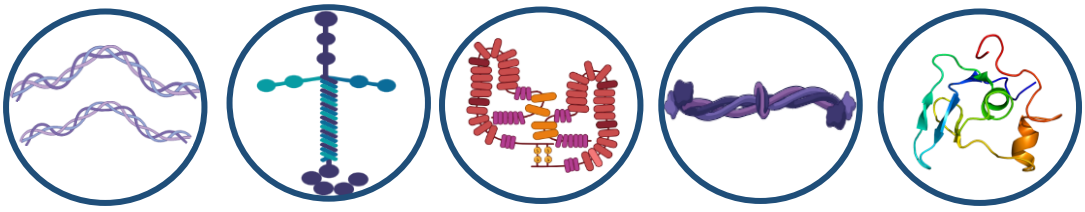
hPCMA* - Human Methacryloyl Placenta is a bioactive placenta-based platform that provides physiologically relevant microenvironments for cells cultured *in vitro*. The precursor solution is easily prepared by reconstituting hPCMA lyophilizate in an aqueous solution with a photoinitiator. Afterwards, it can be cured upon light exposure to form a hydrogel with tuneable mechanical properties. hPCMA hydrogels provide great control over gelation time and matrix stiffness, enabling researchers to create the cell culture environment that better fits their needs.

*Technology Licensed by University of Aveiro

Expires 9 months after MFG

hPCMA, a photopolymerizable hydrogel, is composed of several extracellular matrix (ECM) proteins, including multiple collagen types (e.g., I, III, IV, and VI), as well as fibrinogen, laminin, fibrillin, and fibronectin. These bioactive components are well recognized as key constituents of the extracellular matrix, playing crucial roles in supporting cell adhesion, growth, and proliferation.

MAIN COMPONENTS



Collagen type I, III, IV and VI | **Laminin** | **Fibronectin** | **Fibrinogen** | **Fibrillin**

hPCMA - Validation in Cell Culture

CELL VIABILITY AND PROLIFERATION:

Several types of encapsulated cells, namely, human adipose-derived stem cells (hASCs), HepG2 cells (human liver cancer cell line) and SW982 cells (synovial sarcoma cell line) maintain their viability for at least 7 days and are able to proliferate inside the hydrogels.

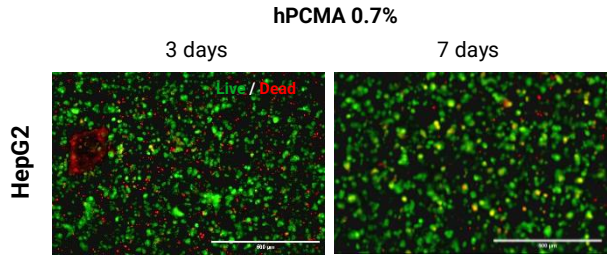


Figure 1. Representative fluorescence images for HepG2 cells encapsulated in hPCMA 0.7% w/v (live/dead assay). Scale bar: 500 µm.

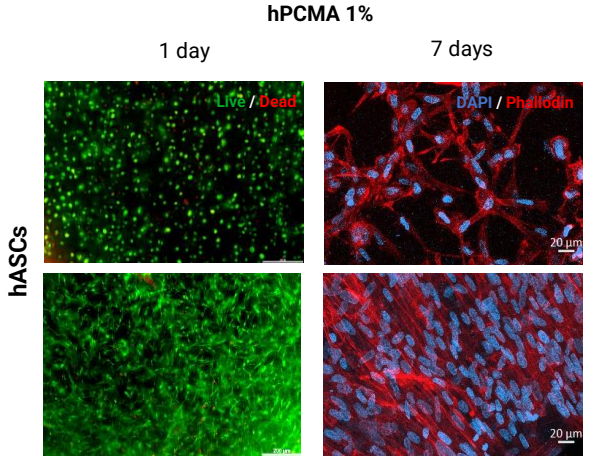


Figure 2. Representative fluorescence images for hASCs encapsulated in hPCMA 1% w/v. Live/dead assay - scale bar: 200 µm, and DAPI/Phalloidin assay - scale bar: 20 µm.

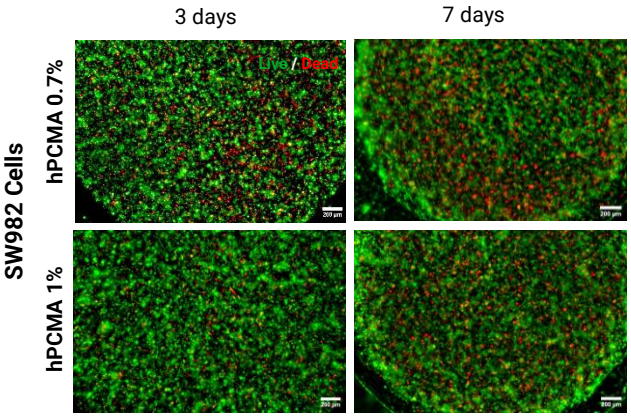


Figure 3. Representative fluorescence images for SW982 cells encapsulated in hPCMA 0.7% w/v and 1% w/v (live/dead assay). Scale bar: 200 µm.

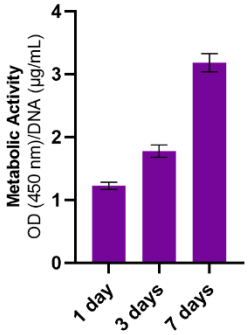


Figure 4. Metabolic activity normalized with the DNS content of hASCs encapsulated in hPCMA 1% w/v, at 1, 3 and 7 days of culture. Results shown as mean (SD).

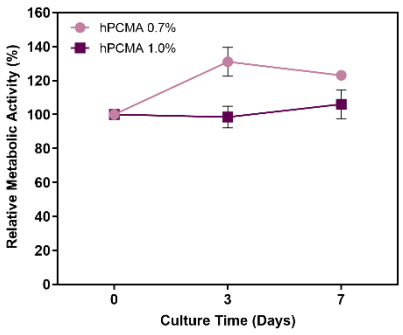
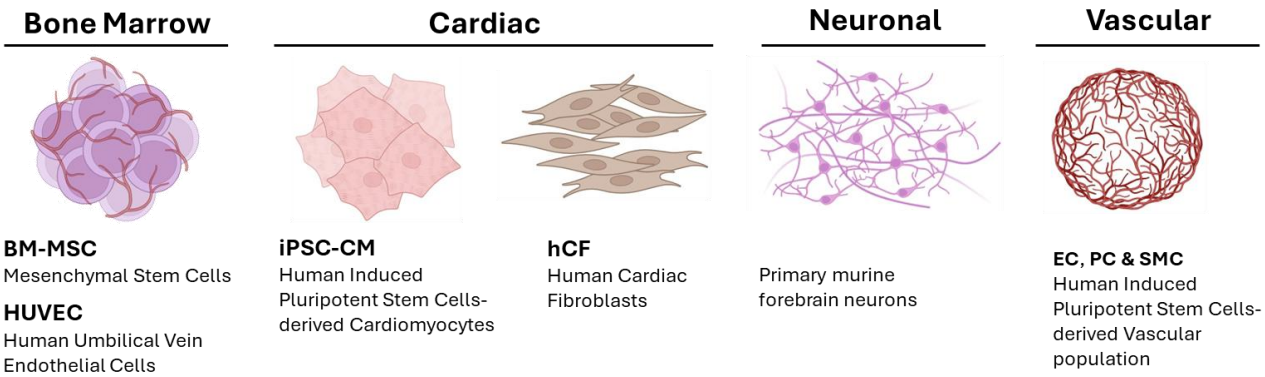


Figure 5. Relative metabolic activity of SW982 cells encapsulated in hPCMA 0.7% w/v and 1% w/v, at 0, 3 and 7 days of culture. Results shown as mean (SD).

Other Cell Types

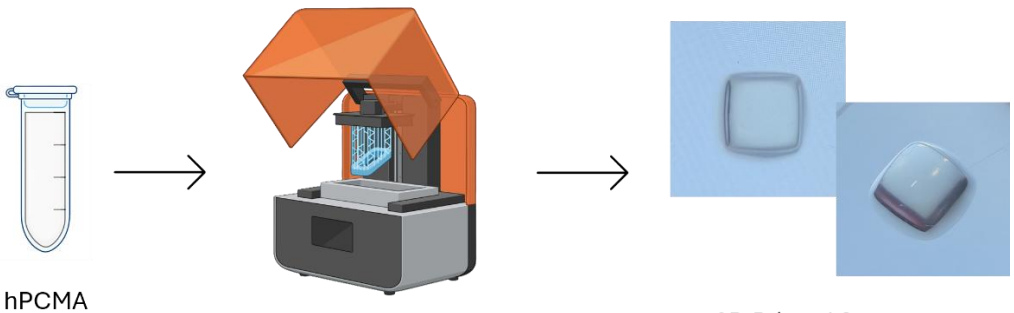
Some of the cell types already validated with our hPCMA product.



hPCMA as an Ink

3D BIOPRINTING BY DLP

hPCMA can be used as an ink for 3D printing in different printing techniques, such as DLP and volumetric bioprinting. It can also be added to new ink formulations as a complement for a human touch.



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