

## Filaflex

Filaflex is a family of thermoplastic polyurethane (TPU) elastomers containing additives that allow the printability of elastic and flexible scaffolds. Compatible with R3D Bio V1 and REG4Life bioprinters, it offers biocompatibility and variable shore hardness (60A-95A), making it ideal for biomedical applications such as anatomical models and customized scaffolds. After printing, cells can be seeded onto the scaffold or embedded in an injectable hydrogel. Mechanical stimulation can further enhance tissue maturation post-printing.

## Specifications

PARAMETER	SPECIFICATION
Base component	TPU elastomer
Appearance	Transparent to opaque. Different colors available
Shore A hardness	60, 70, 82 and 95
Printing temperature	Print head (60A-70A): 200-235 °C Print head (82A-95A): 215-250 °C Bed platform: RT-40 °C

## Key properties

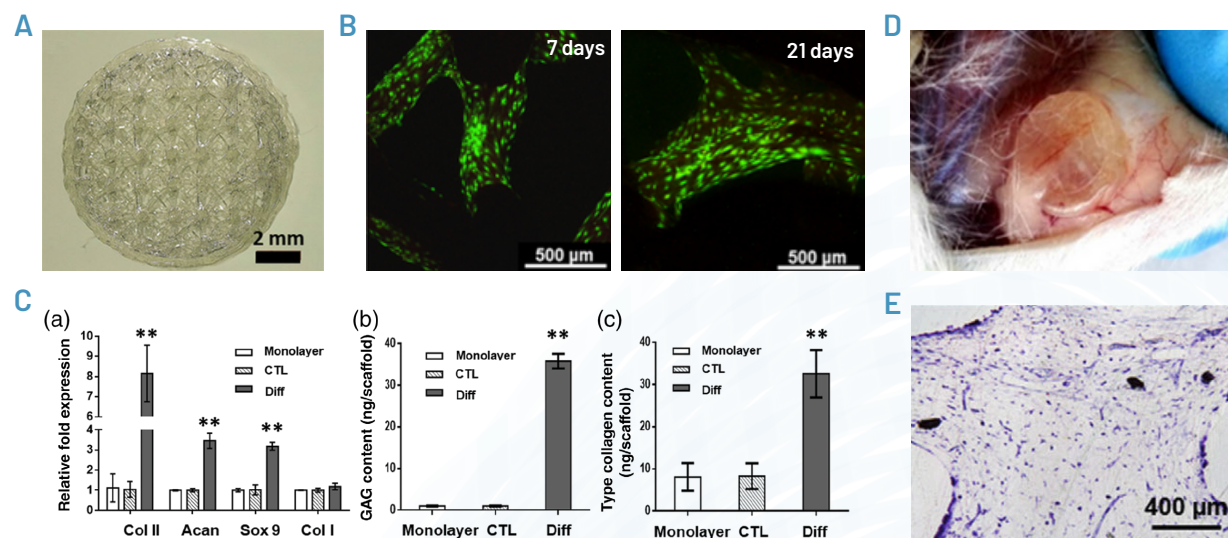
### Biomechanical properties

Filaflex's elastomeric nature enables deformation even at high tensile strengths without fracture, making it a suitable candidate for engineering tissues exposed to constant mechanical stresses.

### Biocompatibility

Its raw materials comply with the European standard and FDA regulations. Enhanced cell survival and adhesion are ensured in a non-cytotoxic environment.

## Supportive Material



(A) Macroscopic view of 3D-printed Filaflex scaffolds [1]; (B) Representative confocal images of human adipose tissue-derived mesenchymal stem cells (hMSCs) cultured on Filaflex scaffolds showing high cell viability at days 7 and 21 (calcein/propidium homodimer, green/red) [1]; (C) MSCs chondrogenic differentiation in b-TPUe bioprinted scaffold: RT-PCR analysis of chondrogenic key markers, GAGs quantification and Type II collagen quantification [1]; (D) Macroscopic images for cell-laden b-TPUe PCL scaffolds implanted in the dorsal region of 8 weeks old female NSG mice and resected 21 days after surgery procedure [1]; (E) Histologic analysis of Toluidine blue and Masson's Trichrome staining of cell-laden b-TPUe scaffolds three weeks post-implantation [1].

### References

[1] Chocarro-Wrona et al., *Bioeng Transl Med*, 2020;6:e10192.

### Intended use

Research Use Only. Not for use in diagnostic procedures or for administration to humans.

### Shelf life

The product remains stable when stored and handled according to the recommended conditions.

### Storage conditions

Keep container tightly closed. Store in a dry, well-ventilated area, protected from atmospheric agents.

Recommended storage temperature: Below 40 °C.

### Printing protocol

3D printing protocol can be downloaded from our website. Scan the QR code to reach the product webpage.

