

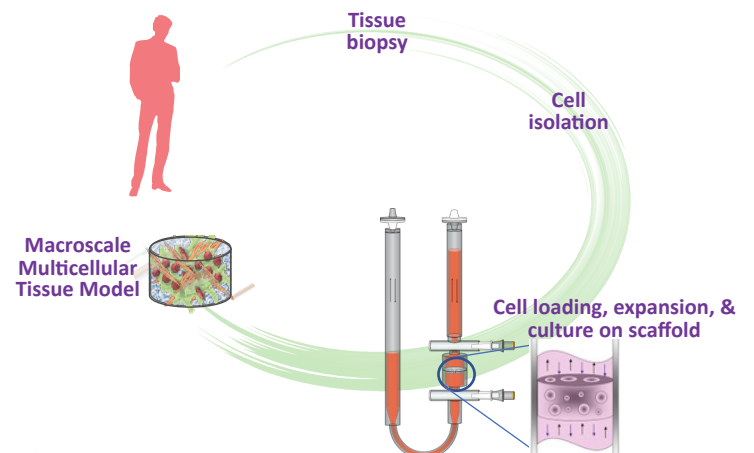
# U-CUP

3D Culture Under Perfusion

**CELLEC**  
CELLEC BIOTEK AG

**An established technology for reliable culture of functional 3D Tissues**

## Perfusion-based Approach to Tissue Engineering



### U-CUP is

- ✓ efficient with many cell types and sources
- ✓ compatible with different 3D porous scaffolds
- ✓ easy and ready to use

### U-CUP offers

Unprecedented performance in cell culture and tissue generation within 3D scaffolds through:

- uniform cell seeding
- efficient nutrition and waste removal
- improved reproducibility by minimizing manual operations

### U-CUP technical specifications

**System Size:** One incubator can fit 2 set of 10 bioreactors. The pump stays outside

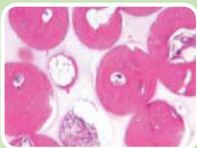
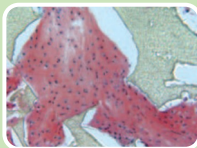
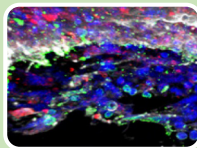
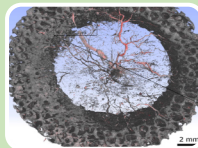
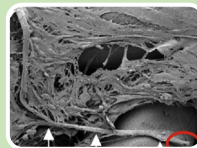
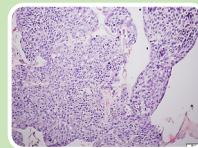
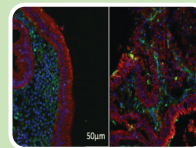
**Scaffold Size:**  $\varnothing \times h$  8x4, 10x2, 10x4 (mm)

**Scaffold Type:** Rigid or Soft; Synthetic or Natural

**Working Volume:** 6 mL to 14 mL per bioreactor

**Perfusion Velocity:** 1  $\mu\text{m/s}$  to 10'000  $\mu\text{m/s}$  (tested)

**Cell Density:** up to tens of millions per bioreactor

						
<b>Osteogenic Tissue</b> • Braccini et al, Stem Cells 2005 • Scherberich et al, Stem Cells 2007	<b>Engineering Cartilage</b> • Wendt et al, Biorheology 2006 • Santoro et al, Biomaterials 2010	<b>Bone/Bone Marrow Model</b> • Papadimitropoulos et al, Eur Cell Mater 2011 <b>Hematopoietic Niche Model</b> • Bourguine et al, PNAS 2018 <b>Leukemia Niche Model</b> • García-García et al, PNAS 2021	<b>Engineered Vasculogenic Tissue</b> • Scherberich et al, Stem Cells 2007 • Güven et al, Biomaterials 2011 • Ismail et al, Acta Biomater 2017	<b>Engineered Extracellular Matrix</b> • Sadr et al, Biomaterials 2012 • Rossi et al, Acta Biomater 2018	<b>Tumor Tissue Model based on cell lines</b> • Hirt et al, Biomaterials 2015 • Foglietta et al, Nanomedicine 2018	<b>Tumor Tissue Model based on Patient material</b> • Muraro et al, Oncoimm 2017 • Manfredonia et al, Adv Biosystems 2019 • Huo et al, Int. J. Mol. Sci. 2022 • Patent US10473646B2

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CELLEC BIOTEK AG develops and commercializes bioreactor systems for 3D cell culture and tissue engineering. Thanks to the patented direct perfusion technologies, our products allow user-friendly seeding and functional maintenance of cells within porous materials. The resulting tissues are used as advanced models of development, physiology, pathology, and drug testing, and prospectively as engineered grafts for tissue and organ regeneration.



For more information:

