

U-CUP

3D Culture Under Perfusion



Upgrade your cell culture technique to the next dimension!

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

1 U-CUP rack



1 U-CUP pump



10 U-CUP disposable sets (bioreactors)

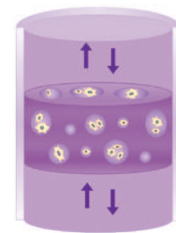


U-CUP Starter kit



What happens in the bioreactor?

Cells and medium directly perfuse through the pores of the 3D scaffold, in alternate directions



▶ Porous scaffolds, providing a 3D template for cells to settle and grow or develop a tissue, are also available through our website.

Options for cell or tissue culture in U-CUP

Cell retrieval:

Cells are retrieved by enzymatic digestion then analyzed with typical lab equipment (e.g. RT-PCR, FACS)

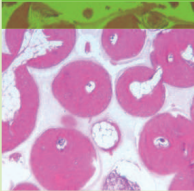
Tissue harvesting:

Tissue constructs are employed as such for in vitro analyses (e.g. histology) or pre-clinical use (e.g. in vivo implantation)

Scientific results using U-CUP bioreactor system

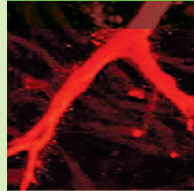
10+ years of experience in bioreactors and 3D cell culture

Engineered osteogenic tissue



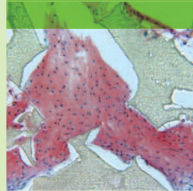
Braccini et al.,
Stem Cells 2005;
Scherberich et al.,
Stem Cells 2007

Engineered vasculogenic tissue



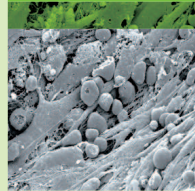
Scherberich et al.,
Stem Cells 2007;
Güven et al.,
Biomaterials 2011

Engineered cartilage



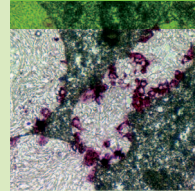
Wendt et al.,
Biorheology 2006;
Santoro et al.,
Biomaterials 2010

Engineered stroma for hematopoietic cells



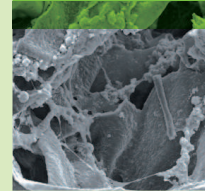
Di Maggio et al.,
Biomaterials 2011

Engineered multi-cell co-culture model of bone organ



Papadimitropoulos et al.,
Eur Cell Mater 2011

Engineered decellularized extracellular matrix



Sadr et al.,
Biomaterials 2012

U-CUP technical specifications

System size	Scaffold type	Scaffold size	Working volume	Perfusion velocity	Cell density
Rack hosts up to 10 independent U-CUP bioreactors and fits into an incubator	Rigid or soft; ceramic, synthetic or natural polymer based	Thickness: 2 – 4 mm Diameter: 6 – 8 – 10 mm	6 ml to 14 ml per bioreactor	1 $\mu\text{m/s}$ to 10 000 $\mu\text{m/s}$ (or higher if required)	Wide range (up to tens of millions per bioreactor)

If you need advices to set up your experiments, you can contact us on: support@cellecbiotek.com



CELLEC BIOTEK AG
Vogesenstrasse 135, 4056 Basel, Switzerland
+41 61 3213033 | info@cellecbiotek.com

CELLEC BIOTEK AG was founded as a spin-off of a lab of the University Hospital Basel, Switzerland, active in the world of Tissue Engineering and Regenerative Medicine. We are an international team of engineers, biotechnologists and clinicians. We develop and commercialize bioreactors for 3D cell culture and tissue generation. Our products allow growing 3D living tissues, as advanced model systems for tissue development and drug testing, applied to life sciences and pharmaceutical research, or potentially as biological grafts for tissue and organ regeneration, applied to clinical translation in regenerative medicine.



More information about us and our products on www.cellecbiotek.com