A close-up photograph of a glass pipette dispensing a single drop of clear liquid into a petri dish. The background is a soft, out-of-focus laboratory setting with a warm yellow light source. The text 'Cell&Soft' is in the top right corner.

Cell&Soft

Product catalog

SOFT CULTURE PLATES, PLEASED CELLS.

A new generation of cell culture plates.

Relevant, plug & play, compliant, disruptive.

MecaChips®

By Cell&Soft

Why using MecaChips® plates?

In vivo, cells lay in soft tissues with distinct physical properties. Rigidity plays a major role in a myriad of cellular mechanisms, such as carcinogenesis and metastasis formation, as well as stem cells differentiation and drug effectiveness. MecaChips® soft and flat matrices are new and physiological solutions for *in vitro* cell culture. They mimic the soft mechanical features of all human or animal tissues, thus preserving the cells *in vivo* characteristics. To be representative, *in vitro* cell devices should selectively provide culture conditions as close as possible to the mechanical microenvironment of targeted tissues.

DESCRIPTION

Polyacrylamide gel with extracellular protein matrix surface coating.

APPLICATIONS

Areas: basic research, stem cells, oncology, neurology, cardiology, compatible with HCS/HTS platforms.
Tools: cell biology, molecular biology, biochemistry.

KEY BENEFITS

- Relevant
- Compliant
- Disruptive
- Plug & Play
- No biological risk (synthetic matrix)
- Glass bottom (ideal for microscopy)
- Stiffness and coating are decoupled
- Scalable to screening workflow (no topography)
- Compatible with standard analysis

CULTURE-DEDICATED SURFACE CHEMISTRY

- Vitronectin (human, recombinant truncated)
- Fibronectin (human, plasma)
- Collagen I (rat, tail)
- Laminin (mouse, EHS sarcoma)
- Poly-Ornithine/ Laminin
- Poly-Ornithine

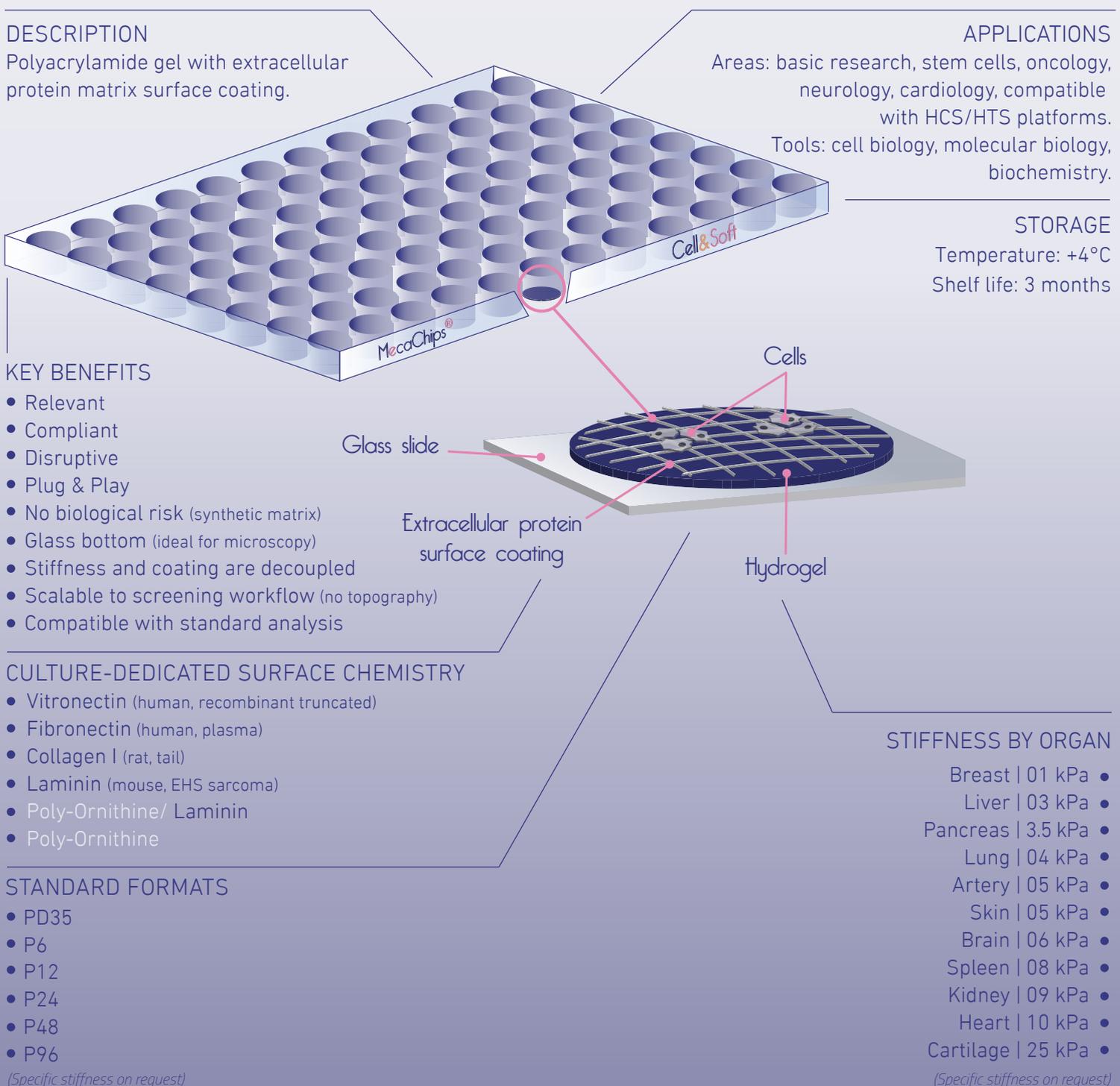
STANDARD FORMATS

- PD35
- P6
- P12
- P24
- P48
- P96

(Specific stiffness on request)

STORAGE

Temperature: +4°C
Shelf life: 3 months



STIFFNESS BY ORGAN

- Breast | 01 kPa
- Liver | 03 kPa
- Pancreas | 3.5 kPa
- Lung | 04 kPa
- Artery | 05 kPa
- Skin | 05 kPa
- Brain | 06 kPa
- Spleen | 08 kPa
- Kidney | 09 kPa
- Heart | 10 kPa
- Cartilage | 25 kPa

(Specific stiffness on request)

μ pattern MecaChips®

By Cell&Soft

Why using μ pattern MecaChips® plates?

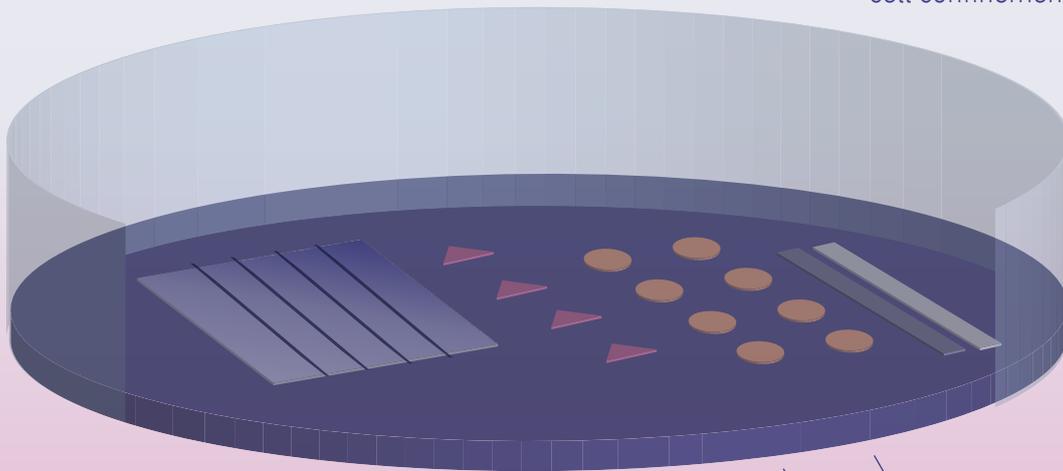
In vivo tissues are soft, elastic and mechanically textured. Living tissues rigidity properties present microscale variations that can play a crucial role in cell response (in a same tissue, rigidity varies from Pa/mm to kPa/ μ m). Relying on unique patented technologies and know-how derived from the microelectronic field, the mechanical properties of Mecachips® matrices can be finely tuned up to the μ m scale to replicate such variations.

DESCRIPTION

Micropatterned polyacrylamide gel.
Control your mechanical cell environment at the micrometer scale.

APPLICATIONS

Areas: basic research, stem cells, oncology, neurology, cardiology.
Tools: adhesion, cell shape standardization, cell confinement, cell migration.



KEY BENEFITS

- Relevant
- Compliant
- Disruptive
- Plug & Play
- No biological risk (synthetic matrix)
- Glass bottom (ideal for microscopy)
- Stiffness and coating are decoupled

STIFFNESS ON REQUEST

ONE FORMAT PD35

CULTURE-DEDICATED SURFACE CHEMISTRY

- Vitronectin (human, recombinant truncated)
- Fibronectin (human, plasma)
- Collagen I (rat, tail)
- Laminin (mouse, EHS sarcoma)
- Poly-Ornithine/ Laminin
- Poly-Ornithine

STORAGE

Temperature: +4°C
Shelf life: 3 months

SHAPES

Subcellular to cellular scale (1 - 100 μ m):

- Geometric patterns (dots, triangles)
- Stripes of rigidity

Tissue scale (Pa/mm to kPa/ μ m):

- Rigidity steps
- Gradients of rigidity

(Custom patterns on request)

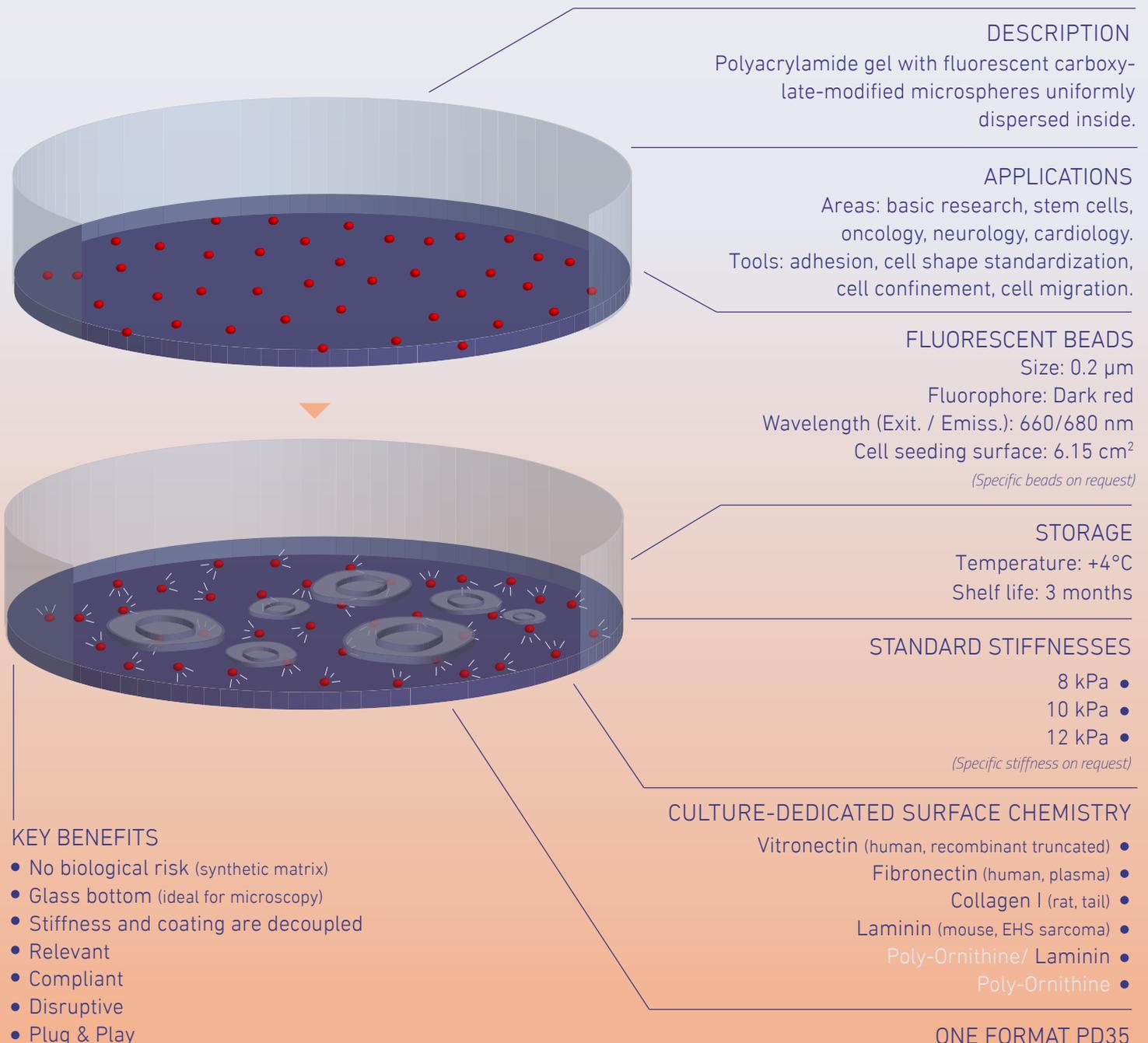
MecaTract

For TRACTION FORCE MICROSCOPY

By Cell&Soft

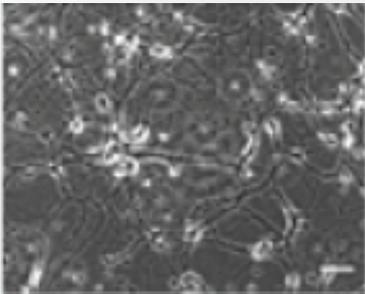
Why using MecaTract plates?

Cell-contractile forces generated by the actomyosin cytoskeleton and transmitted to the extracellular matrix (ECM) drive cell adhesion, spreading and migration. These forces are known to be critical during embryo morphogenesis, wound healing, immune response as well as pathological processes such as cancer metastasis. Traction force microscopy (TFM) is a recognized experimental technique that measures the surface forces, also termed as tractions, that cells exert on a given substrate. It relies on the computational analysis of the direction and magnitude of elastic substrate deformations to reconstruct cell-generated traction forces. These deformations can be tracked and quantified by recording the displacement of fluorescent beads already embedded in the substrate, as a result of the mechanical stress induced by an adherent cell.

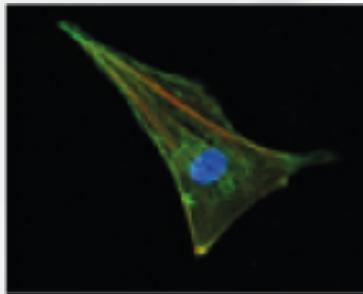


APPLICATIONS

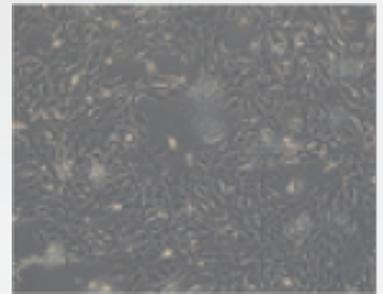
MecaChips®



Brain Mecachips®
Mice neuronal cells growth on soft Laminin/ Poly-L-Lysine coated matrix.

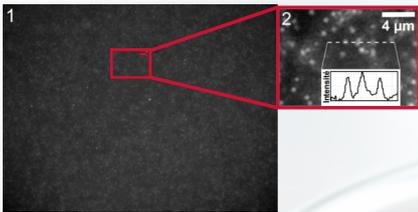


Heart Mecachips®
iPSC-derived contractile cardio-myocyte on soft fibronectin coated matrix.



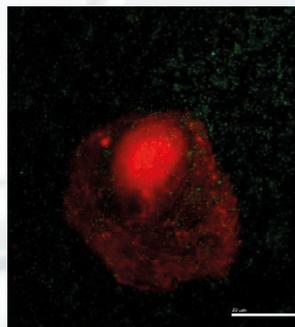
Lung Mecachips®
Human bronchial epithelial cells on soft collagen I coated matrix.

MecaTract



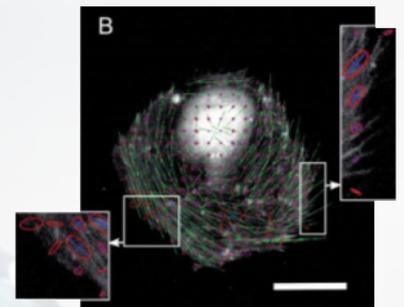
1) Fluorescence image of the beads near the surface of the hydrogel.
2) Intensity profile of the fluorescent beads.

Michel Moussus' thesis (LTM)



HUVECS cells transfected with LifeAct Dye (Actin).
Beads 0.2 μm .

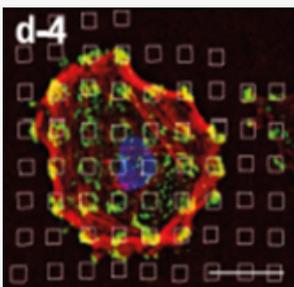
Courtesy of Alice Nicolas (LTM lab)



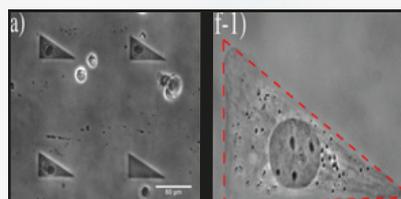
Intracellular stress pattern.
HUVECS, 5 kPa.

Soft Matter. Moussus et al, 2014

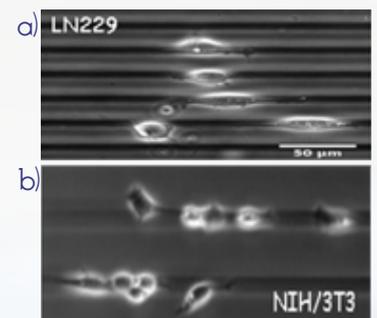
μ pattern MecaChips®



Sub-cellular scale
REF52 cell line YFP paxillin. Dots 3 μm .



Cellular scale
REF52 cell line
 μ pattern 80 μm by 40 μm .



Tissue scale
a) stiff stripes 10 μm / soft stripes 90 μm .
b) stiff stripes 10 μm /soft stripes 40 μm .

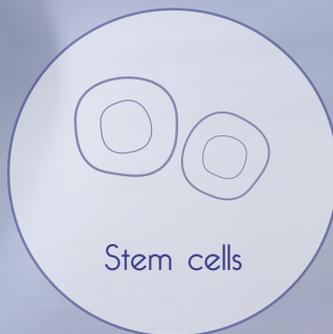
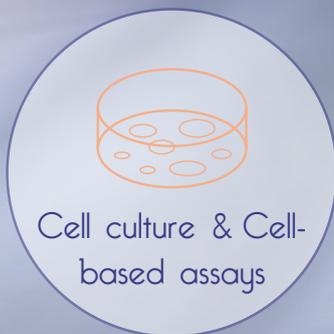
Cell&Soft

SOFT CULTURE PLATES, PLEASED CELLS.

At Cell&Soft, we are committed to the research and development of soft and biomechanical substrates for *in vitro* cell culture. Our solutions enhance the physiology and the relevance of cell culture and cell-based assays.

Our team spent years conducting research to develop a new generation of cell culture plates that offers controlled rigidity and mechano-mimetic extracellular environments. Our mission is to reinvent cell culture, by becoming a new and innovative actor for the *in vitro* research.

CELL&SOFT CULTURE PLATES ARE DEDICATED TO:



A NEW GENERATION OF CELL CULTURE PLATES.

RELEVANT

Able to reproduce 11 different tissues and their pathological counterparts.

PLUG & PLAY

No matrix to prepare or proteins to add: saves 60-80% of preparation time compared to 3D culture.

COMPLIANT

Complies with SBS standards: compatible with laboratory automats.

DISRUPTIVE

Rely on a strong IP of 4 patents.

Let's reinvent cell culture!

contact@cellandsoft.com | www.cellandsoft.com