

# CYTOOchips™

*Normalize. Analyze. Discover.*

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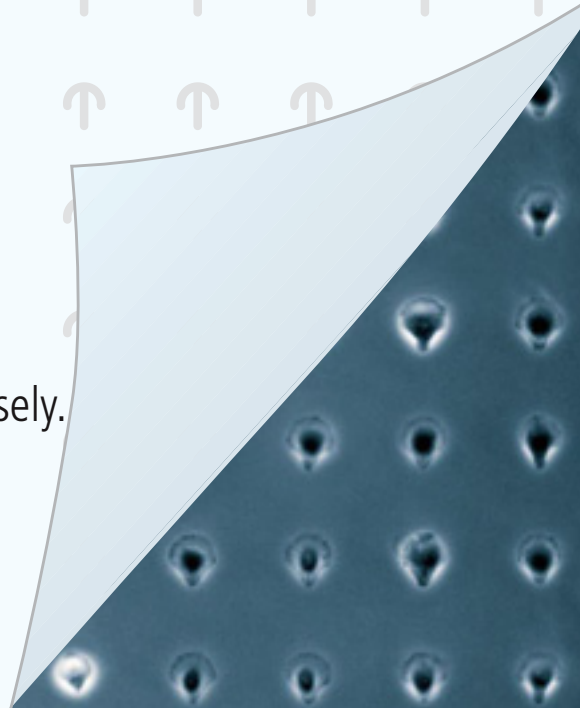
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CELL ARCHITECTS

High Content Analysis. Precisely.

5  
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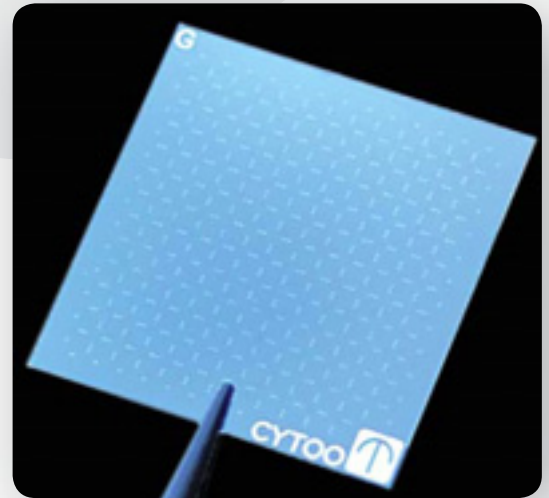
# CYTOOchips

## Quantitative cell analysis at your fingertips

Designed to normalize cells and reduce variability in cell-based assays, CYTOOchips are glass coverslips with thousands of adhesive micropatterns printed on a cytophobic surface.

When seeded on concave micropatterns, cells attach and stretch out over the non-adhesive surface. The geometric distribution of adhesive contacts between cells and substrate induces the reproducible polarization of the cell machinery. Cell position, cell shape, cell polarity and internal cell organization become normalized.

CYTOOchips pave the way to more reliable and sensitive quantitative cell analysis.



## 📌 Straightforward analysis, reliable results, faster discovery

- Control the location of cell compartments and protein networks
- Achieve simple and rapid image analysis
- Carry out live time-lapse experiments on immobilized cells
- Create a Reference Cell™
- Improve assay reproducibility and increase sensitivity

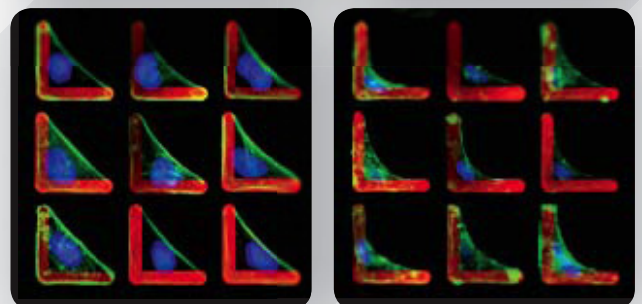
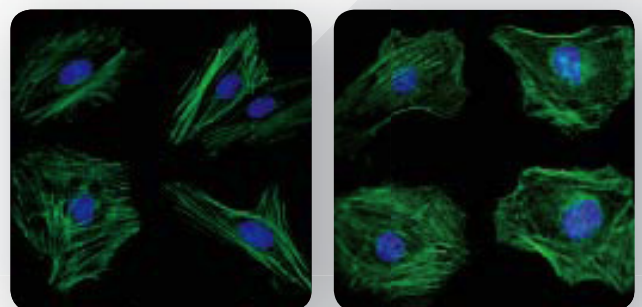
## 📌 Unlimited range of cell biology applications...

- Cell shape and actin cytoskeleton (actin polymerization, microtubule dynamics, actin-myosin contractility...)
- Cell cycle (cell division, mitotic spindle orientation, ...)
- Cell signaling events (protein trafficking and translocation, signal transduction, ...)
- Cell polarity and organelle positioning
- Apoptosis
- Stem cell differentiation,
- EMT
- Cell migration
- Inflammation
- ...

## 📌 Illustration of how micropatterns offer easy quantification and unequalled sensitivity in a simple drug assay

In conventional culture vessels (top), the effect of 5  $\mu$ M Blebbistatin is barely visible whereas it can be easily quantified on L micropatterns (bottom).

Download our full poster and discover other application examples here:  
[www.cytoo.com/applications](http://www.cytoo.com/applications)



Control

5  $\mu$ M Blebbistatin

## Choose the right micropattern for your application

For custom micropatterns please contact us [contact@cytoo.com](mailto:contact@cytoo.com)

	Disc	Crossbow	H	Y	L
Adhesive patterns					
Cells					
Description	No polarization	Strong polarization	Symmetric organization	Triaxial symmetry organization	Single free edge organization
Noteworthy Applications	<ul style="list-style-type: none"> <li>. Array cells</li> <li>. Control cell spreading and contraction</li> <li>. Control ciliogenesis</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>. Polarize cells</li> <li>. Study internal organelle/endomembrane spatial organisation</li> <li>. Study microtubule dynamics</li> <li>. Control asymmetric cell division</li> </ul>	<ul style="list-style-type: none"> <li>. Control symmetric cell division</li> <li>. Quantify cell-cell adhesion/contacts</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>. Study Multipolar divisions and supernumerary centrosomes</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>. Measure contractility</li> <li>. Measure subtle alterations in spindle orientation during mitosis</li> <li>...</li> </ul>

## A non exhaustive list of cell types already published on micropatterns

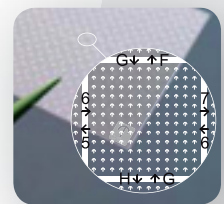
- Epithelial cells (HeLa, RPE-1, CHO, MDCK, BSC, MCF10A)
- Fibroblasts (murine NIH-3T3, BHK)
- Adenocarcinoma cell lines (MDA-231, A549)
- Hepatic cell lines (HepG2)
- Primary cells (Rat astrocytes, Rat ventricular myocytes, myoblasts)
- Neurons and neuron progenitors (SH-SY5Y; hippocampal and cortical neurons)
- Stem Cells (Human mesenchymal stem cells, mouse embryonic stem cells/mESCs)

Check here for an updated list of cell types: [www.cytoo.com/celltypes](http://www.cytoo.com/celltypes)

## A GPS for your cells

In order to easily localize and return to the exact same cell over time, the micropattern layout is organized in a Grid Positioning System (GPS) comprising 168 micropattern blocks with grid coordinates printed on the underside of the chip.

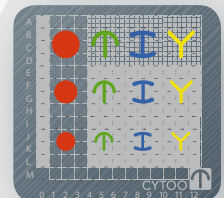
Depending on micropattern size, there are 81 or 144 copies of the same micropattern in each block.



## The Starter's CYTOOchip

The Starter's CYTOOchip has been designed to allow you to identify which pattern works best for your specific application and cell type among 12 standard micropatterns (4 shapes in 3 sizes).

An added feature is a large area (column 0) homogeneously covered in fibronectin on which your cells will behave as if they were on a standard isotropic adhesive cell culture surface.



## CYTOOchambers™ for Live Cell Imaging

CYTOOchambers are easy-to-use devices designed for time lapse experiments on CYTOOchips.

Available in 1- or 4-well formats, CYTOOchambers have a standard footprint and fit into all 35mm microscope stage adaptors. Custom designs (such as perfusion chambers) are available on request.



## Product specifications

Substrate	High quality low fluorescence glass		
Chip size	20 x 20 mm <sup>2</sup>		
Glass thickness	170 µm		
Micropattern geometries	Disk, Crossbow, H, Y, L and custom-made		
Standard pattern sizes	Small	Medium	Large
Cell area	700 µm <sup>2</sup>	1100 µm <sup>2</sup>	1600 µm <sup>2</sup>
Number of micropatterns per chip	20,736	20,736	11,664
Micropatterns per block	12 x 12	12 x 12	9 x 9
Pitch between micropatterns	100 µm	100 µm	130 µm
Micropattern line width	6 µm	8 µm	8 µm
Custom-made pattern size	Minimum line width of 2µm		
Localization grid (GPS)	Yes		
Adhesion protein	Fibronectin, Poly-L-Lysine, or Ready-to-coat*		
Packaging	By 6; in a sealed blister pack		

\* = pre-activated CYTOOchips for adsorption of the protein of your choice. Contact us for specific needs.

## Ordering information

Cat. No. <sup>1)</sup>	Product <sup>2)</sup>	Micropattern	Size	Packaging <sup>3)</sup>
10-900-X	CYTOOchips 20x20 Starter-[Protein]	Multi	Multi	Set of 6
10-001-X	CYTOOchips 20x20 DC-S-[Protein]	Disc	Small (700 µm <sup>2</sup> )	Set of 6
10-002-X	CYTOOchips 20x20 DC-M-[Protein]	Disc	Medium (1100 µm <sup>2</sup> )	Set of 6
10-003-X	CYTOOchips 20x20 DC-L-[Protein]	Disc	Large (1600 µm <sup>2</sup> )	Set of 6
10-004-X	CYTOOchips 20x20 CW-S-[Protein]	Crossbow	Small (700 µm <sup>2</sup> )	Set of 6
10-005-X	CYTOOchips 20x20 CW-M-[Protein]	Crossbow	Medium (1100 µm <sup>2</sup> )	Set of 6
10-006-X	CYTOOchips 20x20 CW-L-[Protein]	Crossbow	Large (1600 µm <sup>2</sup> )	Set of 6
10-007-X	CYTOOchips 20x20 H-S-[Protein]	H	Small (700 µm <sup>2</sup> )	Set of 6
10-008-X	CYTOOchips 20x20 H-M-[Protein]	H	Medium (1100 µm <sup>2</sup> )	Set of 6
10-009-X	CYTOOchips 20x20 H-L-[Protein]	H	Large (1600 µm <sup>2</sup> )	Set of 6
10-010-X	CYTOOchips 20x20 Y-S-[Protein]	Y	Small (700 µm <sup>2</sup> )	Set of 6
10-011-X	CYTOOchips 20x20 Y-M-[Protein]	Y	Medium (1100 µm <sup>2</sup> )	Set of 6
10-012-X	CYTOOchips 20x20 Y-L-[Protein]	Y	Large (1600 µm <sup>2</sup> )	Set of 6
10-013-X	CYTOOchips 20x20 L-S-[Protein]	L	Small (700 µm <sup>2</sup> )	Set of 6
10-014-X	CYTOOchips 20x20 L-M-[Protein]	L	Medium (1100 µm <sup>2</sup> )	Set of 6
10-015-X	CYTOOchips 20x20 L-L-[Protein]	L	Large (1600 µm <sup>2</sup> )	Set of 6
10-950-X	CYTOOchips 20x20 Custom-[Protein]	Custom	Custom	Set of 18
30-010	CYTOOchamber 1 well <sup>4)</sup>	Max. imaging area 16.5 x 16.5 mm <sup>2</sup>		
30-011	CYTOOchamber 4 wells <sup>4)</sup>	Max. imaging area 7.5 x 7.5 mm <sup>2</sup> per well		
30-090	CYTOOchamber Custom <sup>4)</sup>	For example, perfusion chambers with controlled chamber volumes		
30-020	Microscope adaptor plate	With clips; accept up to 6 CYTOOchambers		

1) To generate Cat. No. replace X with: 00 - Activated Ready-to-coat (no ECM protein); 10 - Fibronectin (FN);

12 - Fluorescent FN with excitation at 550 nm; 13 - Fluorescent FN with excitation at 650 nm; 20 - Poly-L-Lysine.

2) To generate Product Name: replace [Protein] with: A - Activated Ready-to-coat (no ECM protein); FN - Fibronectin; FN550 - Fluorescent FN with excitation 550 nm; FN650 - Fluorescent FN with excitation 650 nm; PLL - Poly-L-Lysine.

3) Depending of fluorescent labeling and protein some of references might be sold only by a set of 18. Please visit [www.cytoo.com/store](http://www.cytoo.com/store) or contact us for details

4) Compatible with CYTOOchip 20x20 mm<sup>2</sup>.

For inquiries please email [sales@cytoo.com](mailto:sales@cytoo.com) or connect to our on-line store: [www.cytoo.com/store](http://www.cytoo.com/store)

## Further Reading

Find here a list of relevant publications : [www.cytoo.com/publications](http://www.cytoo.com/publications)



CELL ARCHITECTS

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