

Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1

The Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1 enables to carry out cell-based assays in microfluidic chips placed in this incubator to be easily mounted on a microscope stage. Microfluidic chips can be directly placed in the frame that allows for the desired temperature on the chip due to integrated heating elements. The fluidic interfaces are directly integrated in the Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1 to achieve an easy liquid supply and removal without interfering with the optical detection zone.

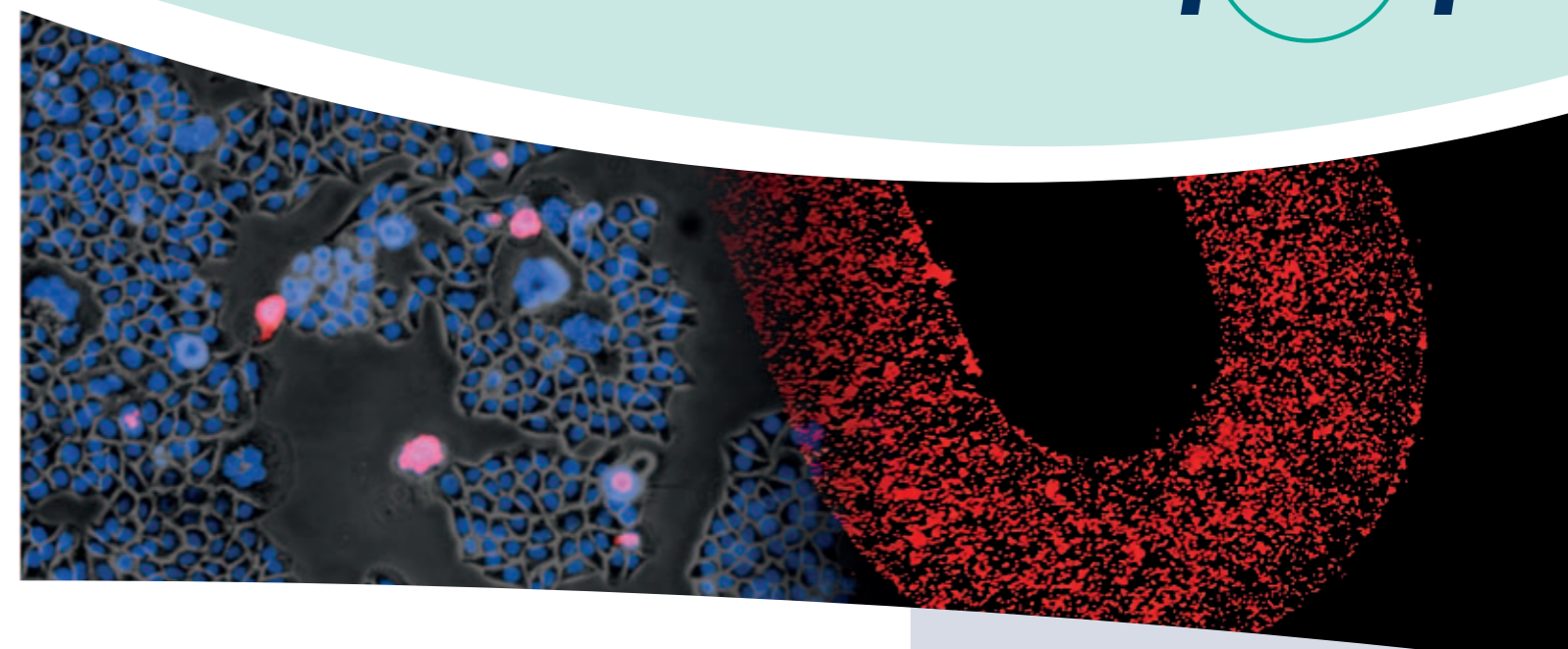
Various kinds of applications can be facilitated on chip with the help of the Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1:

- CO₂-independent microfluidic cell culture assays
- Cell-based microscopy assays
- Live cell imaging

Features that the Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1 offers:

- Standard microtiter plate format; fits with all inverted microscopes having a 96 well plate holder or frame.
- Integrated heating system for excellent cell culture conditions.
- For standard cell culture no additional gas incubation necessary.
- Cell culture is comparable to standard CO₂-incubator.
- Compatible with all standard microscopy slides and microfluidic chips in the format of a microscopy slide.
- Microfluidic interface integrated allowing for liquid handling for long-time assays without additional handling steps.

The fluidic operation of the Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1 can be done manually with a pipette or with connected pumps. Open cavities should be closed with Mini Luer plugs (09-0551-0334-09) to avoid e.g. evaporation.



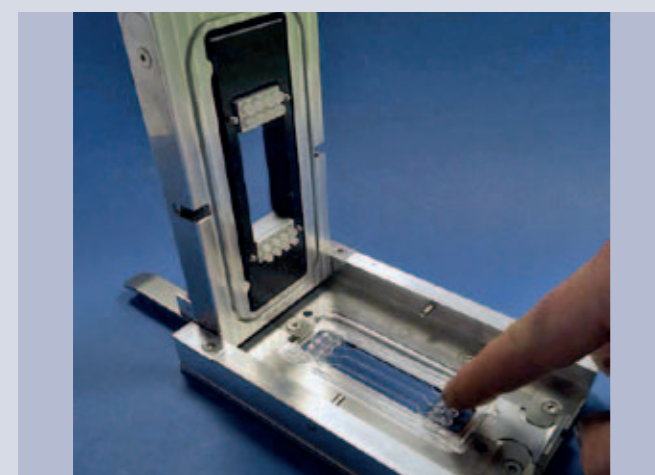
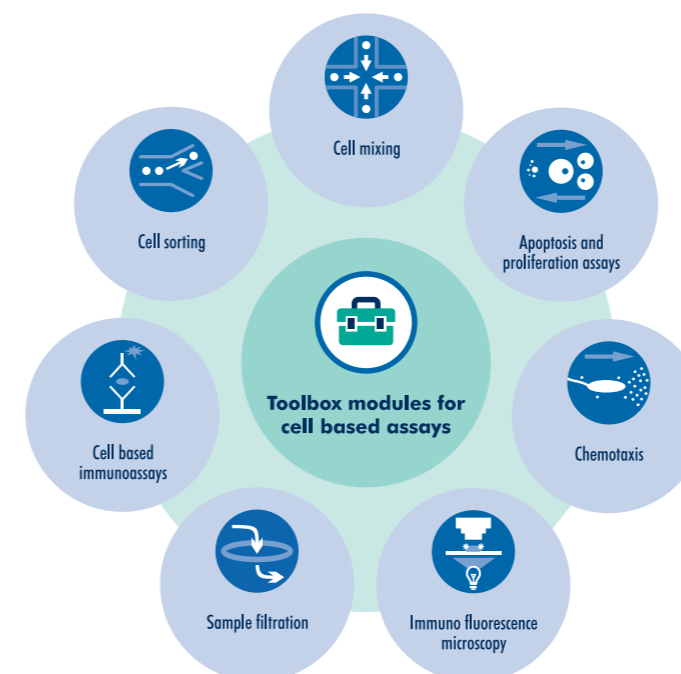
Product code	Description	Detail	Price [€]
22-4500-0000-00	Lab-on-a-Chip Cell Culture Incubator LOC-CCI 1	- Lab-on-a-Chip Cell Culture Incubator - Mini controller - Interface kit for 4 and 8 Mini Luer at the short edges of the chip - PEEK capillaries	1,485.00
11-0826-0000-00	LOC-CCI 1 starter kit 1	- Mini Luer plugs, red, PP (09-0551-0334-09) - Rhombic chamber chip 120 µl volume, 500 µm channel depth, hydrophilized, Topas (12-0906-0172-02), 10 pieces - Rhombic chamber chip 100 µl volume, 600 µm channel depth, hydrophilized, Topas (12-0913-0221-02), 10 pieces - Rhombic chamber chip 250 µl volume, 800 µm channel depth, hydrophilized, Topas (12-0919-0194-02), 10 pieces	638.32

Cell Culture

Solutions for cell-based applications with microfluidic devices

Advantages of microfluidics

- Cell culture under laminar flow conditions
- Closed systems: less contamination risks
- Downscaling of sample volume and reaction time
- Surface treatments and bio-functionalization
- Automation: modular combination of different processes



Insertion of a microfluidic chip in the Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1



Lab-on-a-Chip Cell Culture Incubator – LOC CCI 1 placed on a microscopy stage

Cell culture starter kits

The cell culture starter kits comprise several standard chips as well as the accessories for a quick start with cell culture on microfluidic devices.

Standard platforms

Several chip types are at hand, having a standardized format (microscopy slide and microtiter plate) with different integrated fluidic channels, chambers and structures for cell cultivation. The standardized platforms can be easily customized according to users' need.

Product families

- Fluorescence microscopy
- Sample filtration
- Cell based immuno assays
- Cell mixing and sorting
- Apoptosis and proliferation assay
- Chemotaxis

Instruments and accessories

Additionally equipment like thermal controlled holding frames for the incubation and liquid handling of the microfluidic chips as well as pumps, tubes and interfaces are directly available.

Materials and surface treatments

Every microfluidic device is available in materials with different properties and surface treatments for various applications.

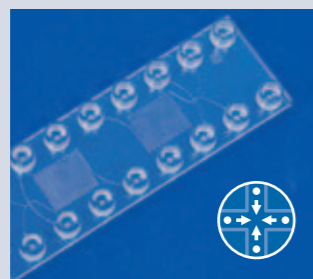
Materials: PMMA, Topas, PC, Zeonor, Zeonex, PS
Surface treatments: Hydrophilization, hydrophobization, amino- or carboxyfunctionalization etc.

Product families for cell-based assays

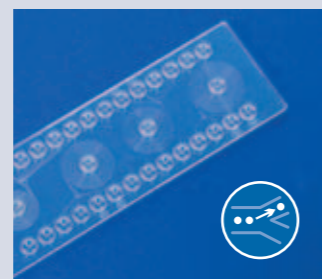
Every product family contains chips with various microfluidic structures referring to the same application. The table should help to find the suitable chip for the required application. All chips are available in various materials and with different surface treatments.

Product code	Cell mixing	Cell sorting	Immuno assays	Sample filtration	Immuno fluorescence microscopy	Chemotaxis	Apoptosis / Proliferation	Structures
12-0917-0194-05	---	---	++	---	+++	++	++	2 Rhombic chambers
12-0911-0221-05	---	---	++	---	+++	++	++	4 Rhombic chambers
12-0929-0131-05	---	---	++	---	+++	+	+++	7 Rhombic chambers
12-0923-0132-05	---	---	++	---	+++	+	+++	4 Rhombic chambers
12-0968-0478-05	---	---	++	---	+++	+	+++	8 Rhombic chambers
01-0191-0431-05	---	---	+	---	++	++	++	4 Straight channels
01-0245-0102-05	---	---	+++	---	+++	+	+++	64 Channels - microtiter plate
01-0183-0268-05	---	---	+++	---	++	+	+	1 Straight channel
01-0201-0095-05	---	---	+++	---	++	++	+	1 Straight channels with waste chamber
01-0236-0272-05	---	---	+++	---	++	++	+	2 Straight channels with waste chamber
14-1035-0186-03	+++	---	---	---	---	---	---	Diffusion mixer
14-1038-0187-05	+++	---	---	---	---	---	---	Herringbone mixer
14-1040-0286-05	+++	---	---	---	---	---	---	Micro mixer with stir bars
15-1505-0398-02	---	+++	---	+++	---	+++	---	Cross-flow membrane
15-1506-0480-02	---	+++	---	+++	---	+++	---	Cross-flow membrane
15-1503-0168-02	---	---	---	+++	---	---	---	Filtration membrane
15-1504-0200-02	---	---	---	+++	---	---	---	Filtration membrane
18-1708-0382-01	---	+++	---	---	---	---	---	Spiral sorter
14-1031-0220-05	---	+++	---	++	---	---	---	Weir sorter
19-1801-0261-05	---	+++	---	---	+	---	---	Pillar sorter

* Chips available in various polymer materials
 ** Chips can be chosen with different surface treatments



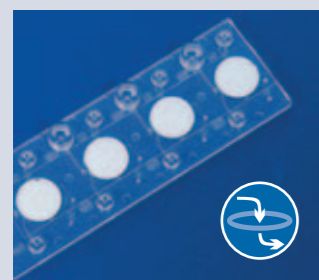
Cell mixing



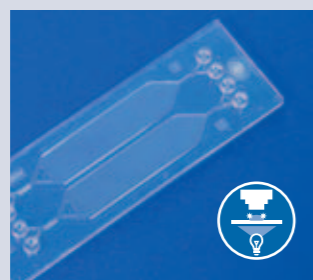
Cell sorting



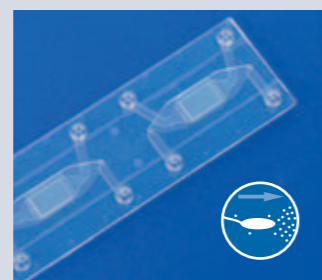
Cell-based immunoassays



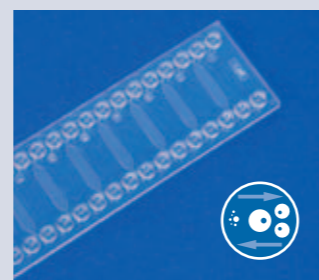
Sample filtration



Immunofluorescence microscopy



Chemotaxis



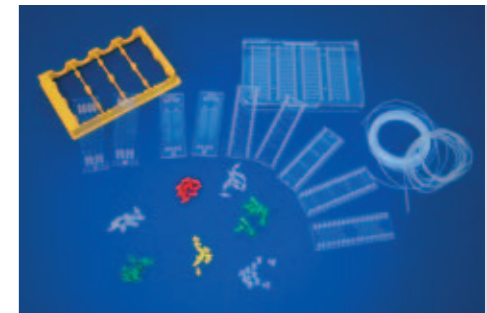
Apoptosis / proliferation assays

Out of the toolbox – cell culture basic kits

microfluidic ChipShop's microfluidic toolbox offers the complete set of chip modules and accessories to start directly with cell-based microfluidic experiments. Tubes, accessories for the interconnection and liquid handling are included. The cell culture basic kits and the microfluidic accessories are designed for the combination with handling frames and chips of the cell culture product families.

Cell culture basic kit 1 – adhesive cell culture – 11-0840-0000-00

Product code	Description	Quantity	Price [€/kit]
09-0541-0331-09	Male Mini Luer fluid connector, green, material PP, 10 pieces	1	501.72
09-0562-0331-11	Male Mini Luer fluid connector, opaque, material TPE, 10 pieces	1	
09-0559-0334-09	Male Mini Luer plugs, red, material PP, 10 pieces	1	
09-0551-0334-09	Male Mini Luer plugs, opaque, material TPE, 10 pieces	1	
09-0565-0391-11	Mini Luer to pipette adapter, material PP, 10 pieces	1	
09-0610-0000-00	Silicone tube, 0,5 mm ID, 2 m	1	
11-0803-0000-00	PTFE tube, 0,5 mm ID, 5 m	1	
15-4000-0000-12	Microtiter plate sized handling frame for four slide sized chip	1	
12-0914-0221-05	Rhombic chamber chip, chamber volume 100 µl (x4), material Zeonor, hydrophilized	2	
12-0920-0194-05	Rhombic chamber chip, chamber volume 250 µl (x2), material Zeonor, hydrophilized	2	
12-0926-0132-05	Rhombic chamber chip, chamber volume 6 µl (x7), material Zeonor, hydrophilized	2	
12-0932-0131-05	Rhombic chamber chip, chamber volume 20 µl (x4), material Zeonor, hydrophilized	2	
01-0245-0102-05	MTP, 64 Channels, material Zeonor, hydrophilized	1	
12-0968-0478-05	Rhombic chamber chip, chamber volume 20 µl (x6), material Zeonor, hydrophilized	1	
	Manual	1	



Cell culture basic kit 1

Cell culture basic kit 1: Chips with hydrophilized surfaces, accessories and application notes for a quick start in adhesive cell culture. The chips are suitable for applications like immunofluorescence microscopy, screening, apoptosis- and proliferation assays.

Cell culture basic kit 2 – suspension cell culture – 11-0841-0000-00

Product code	Description	Quantity	Price [€/kit]
09-0541-0331-09	Male Mini Luer fluid connector, green, material PP, 10 pieces	1	449.24
09-0562-0331-11	Male Mini Luer fluid connector, opaque, material TPE, 10 pieces	1	
09-0559-0334-09	Male Mini Luer plugs, red, material PP, 10 pieces	1	
09-0551-0334-09	Male Mini Luer plugs, opaque, material TPE, 10 pieces	1	
09-0565-0391-11	Mini Luer to pipette adapter, material PP, 10 pieces	1	
09-0610-0000-00	Silicone tube, 0,5 mm ID, 2 m	1	
11-0803-0000-00	PTFE tube, 0,5 mm ID, 5 m	1	
15-4000-0000-12	Microtiter plate sized handling frame for four slide sized chip	1	
14-1031-0220-05	Weir chip, material Zeonor	3	
15-1506-0480-02	Cross-flow membrane chip 480, material Topas	3	
12-0917-0194-05	Rhombic chamber chip, chamber volume 250 µl (x2), material Zeonor	3	
	Manual	1	



Cell culture basic kit 2

Cell culture basic 2: Chips with hydrophobic surfaces and microfluidic structures for retaining cells in the chip as well as accessories and application notes for a quick start in suspension cell culture.

Cell culture basic kit 3 – sorting, filtration, mixing – 11-842-0000-00

Product code	Description	Quantity	Price [€/kit]
09-0509-0263-09	Male Luer fluid connector, green, material PP, 10 pieces	1	514.68
09-0504-0270-09	Male Luer plug, opaque, 10 pieces	1	
09-0541-0331-09	Male Mini Luer fluid connector, green, material PP, 10 pieces	1	
09-0562-0331-11	Male Mini Luer fluid connector, opaque, material TPE, 10 pieces	1	
09-0559-0334-09	Male Mini Luer plugs, red, material PP, 10 pieces	1	
09-0551-0334-09	Male Mini Luer plugs, opaque, material TPE, 10 pieces	1	
09-0565-0391-11	Mini Luer to pipette adapter, material PP, 10 pieces	1	
09-0610-0000-00	Silicone tube, 0,5 mm ID, 2 m	1	
11-0803-0000-00	PTFE tube, 0,5 mm ID, 5 m	1	
15-4000-0000-12	Microtiter plate sized handling frame for four slide sized chip	1	
15-1506-0480-02	Cross-flow membrane chip 480	1	
15-1505-0398-02	Cross-flow membrane chip 398	1	
14-1031-0220-05	Weir chip, material Zeonor	1	
18-1709-0382-05	Spiral sorter chip, material Zeonor	1	
14-1036-0186-05	Diffusion mixer, material Zeonor	1	
14-1038-0187-05	Herringbone mixer, material Zeonor	1	
14-1040-0286-05	Micro mixer with stir bar, material Zeonor	1	
19-1801-0261-05	Pillar chip, material Zeonor	1	
	Manual	1	



Cell culture basic kit 3

Cell culture basic 3: Accessories, application notes and chips for various applications like sorting, mixing, filtration, chemotaxis and many more. The chips are usable for adhesive cell culture as well as suspension cell culture.