

Product survey: Cell Culture Devices

Latest Toys for Cell Cultivators

Harry Moore, stem cell biologist and chair in reproductive biology at the University of Sheffield, UK, once dubbed cell culturing as a cross between gardening and cooking. Besides a 'green thumb' and a good nose for the right culture media ingredients, however, effective cell culturing also requires the proper equipment.

Similar to chefs, who at least need a sharp knife, a pan and a cooker, researchers culturing cells also need very few basic tools. Depending on the cells and the scale, the devices necessary for cell culture may range from simple inoculation loops to bioreactors and sophisticated cell culture robots. Researchers working with *E. coli* or yeast cells, for example, need at best some sterile tooth-picks, a gas burner, agar plates and a deft hand to manipulate the plates. Experienced workers may not even need to handle yeast or *E. coli* plates in a clean bench.

The latter are, however, mandatory if working with other cell types, such as mammalian cells. Formerly, clean benches and laminar flow cabinets used to be hollow, droning, shabby rectangular boxes made of steel sheeting. Not only was it almost impossible to sit comfortably in front of them but handling culture dishes and liquids behind the front window was more of a torture than a pleasure.

Realistic or not?

This picture seems to have changed quite dramatically – at least according to the images presented in current high glossy flyers of clean bench manufacturers. They often show a scientist or TA with a smile on the face sitting relaxed in front of a clean bench joyfully pipetting behind the bench's front window. The *Lab Times* reporter leaves you to decide whether this scenario is realistic or not, although one has to admit that ergonomics and noise levels of clean benches have indeed been improved in recent years. Silent models operate at around 50 dB, which is comparable to the sound produced by modern cooking hoods and dishwashers. Advances in clean bench ergonomics, however, are rather gradual

and restricted to features such as a non-dazzling and powerful light or a comfortable armrest at the front-edge of the bench.

Like gardeners, who raise their seedlings in greenhouses at a constant temperature and humidity, cell cultivators keep their 'babies' in incubators to provide them with the proper growth conditions. Incubators are available in different sizes ranging from an interior volume of 15 litres in tiny table models to 200 litres in large-sized floor incubators. Current incubators, especially CO₂-incubators, are far more than just heated chambers. Most models come with sophisticated heating and sterilisation systems, HEPA-filters to ensure sterility inside the chamber and CO₂-sensors to maintain correct CO₂-levels.

Culturing cells in dishes and flasks placed in incubators works fine for small scale applications, it is, however, not feasible if large quantities of cells are required. Scientists planning to scale up their cell culture usually focus on batteries of roller bottles and spinner flasks or single bioreactors with large volumes. Instead of culturing cells in bottles and bioreactors made of glass or stainless steel, however, one may also feed cells in disposable plastic bags. Cell culture bags, which look like oversized milk or blood transfusion bags with hose connections, are available in different formats, ranging from handy one litre bags to 200 litre monsters. The bags are either placed on special shakers, to smoothly rock them back and forth, or mounted into a cabinet harbouring the necessary service pipes and control elements. In the latter version, the cell cultures are stirred by an airstream that initiates a continuous flow of media inside the bag.

As cell culturing is very labour-intensive, a lot of people in cell culture labs dream of

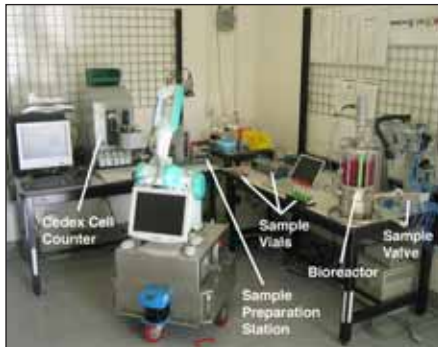
robots to carry out their daily routine. Current automatic cell culture systems are more or less based on liquid and plate-handling robots or work stations. Some are quite impressive machines capable of doing different basic cell culture tasks, such as subculturing and plating, measuring cell viability, maintaining multiple cell lines or splitting cells. All of them, however, are rather large stationary systems that occupy a lot of lab space and are usually not affordable for the ordinary cell culture lab e.g. in academic research.

But flexible, mobile, cell culture robots roaming through labs are already on the way. Martin Wojtczyk from Alois Knoll's robotics and embedded systems group at the TU Munich, currently optimises a mobile cell culture platform that was developed in the early 2000's by a joint cooperation of the Knoll group, Jürgen Lehmann's (now emeritus) cell culture technology group at the University of Düsseldorf, Germany and Bayer HealthCare in Berkeley, California, USA.

Cell cultivator made of steel

Their mobile robot, consisting of a robot arm placed on a wheeled platform recognises the environment with the help of a laser scanner at the platform and a camera mounted on the gripper arm. To demonstrate its cell culture abilities, Wojtczyk has adjusted the robot's tools and its coding to the needs of a pilot cell culture lab at Bayer HealthCare, where the robot's task is to autonomously accomplish the counting of cells grown in a bioreactor. According to results presented by Wojtczyk and Knoll at a recent robotic conference (ISMA09), the mobile robot is doing a good job and has performed more than 100 sampling cycles, without any error. But that's not the end of the story; the Munich team's vision is to provide a service robot, which is able to work side by side with human personnel, without programming the knowledge about the environment. It seems that it's only a matter of time until many a cell cultivator's dream comes true.

HARALD ZÄHRINGER



Mobile cell culture robot at work.

Cell Culture Devices

| Company | Model name | Device type / Applications | Miscellaneous, Specialities, Generally | Price [EUR] |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Aviso Jena, Germany www.aviso-trade.de Contact: Reinhold Schumann Phone: +49(0)3641/4820-0 rs@aviso-trade.de | CellCelector | Automated cell harvesting / Stem cell research, screening, cell picking, colony separation, cell isolation | <ul style="list-style-type: none"> Fully documented single cell harvesting | Approx. 200,000.- |
| BD Biosciences Erembodegem, Belgium www.bdbiosciences.com Contact: help.biosciences@ europe.bd.com | BD Falcon Cultureware | Tissue Culture; Treated Vessels / Cell Culture, scale up and high throughput screenings | <ul style="list-style-type: none"> Flasks, Plates, Petri Dishes, Roller Bottles, Cell Culture Inserts & more | On request |
| | BD BioCoat Cultureware | Tissue Cultureware w. <i>in vivo</i> -like biological coatings / Tiss. Culture, high throughput screening, cell-based assays, angiogenesis assays | <ul style="list-style-type: none"> Dishes, plates, flasks, inserts, microplates | On request |
| | BD PureCoat Cultureware | Tissue Cultureware with proprietary, chemically defined thin-film coating (plasma polymerization) / <i>In vivo</i> -like tissue culture | <ul style="list-style-type: none"> Amine or Carboxyl surfaces; dishes, plates, microplates, flasks | On request |
| Binder Tuttlingen, Germany www.binder-world.com Contact: Phone: +49(0)7462/2005-0 info@binder-world.com | CB 53, CB 150, CB 210 | CO ₂ incubator / Primary cell cultivation, differentiation studies in stem cell research, GMP compliant tissue engineering, <i>in vitro</i> fertilization, cancer research, suspension cultures in integrated systems, compability studies – drug screening – clinical trails | <ul style="list-style-type: none"> Hot air sterilization at 180 °C Easy to clean High dynamic Broad range of CO₂, temperature and humidity parameters | On request |
| | C 150 | CO ₂ incubator / Cell line cultivation, cell culture techniques in basic research, cell-based assays in life science disciplines | <ul style="list-style-type: none"> See above | On request |
| | BD 23, BD 53, BD 115, BD 240, BD 400, BD 720 | Microbiological incubator with natural convection / Long term and stable contineous operation, gentle incubation of organisms, agar plates, conditioning of heat sensitive media | <ul style="list-style-type: none"> Broad range of temperature up to 100°C APT.line preheating chamber Temperature accuracy Reproducible results | On request |
| | BF 53, BF 115, BF 240, BF 400, BF 720 | Microbiological incubator with forced convection / Gentle incubation, samples at high throughput | <ul style="list-style-type: none"> Outstanding dynamics keep the required temperature virtually stable Homogenous distribution | On request |
| | KB 23, KB 53, KB 115, KB 240, KB 400, KB 720 | Refrigerated microbiological incubator / Allrounder for microorganisms | <ul style="list-style-type: none"> Enormous temperature span Rapid recovery times APT.line preheating chamber Maximum precision | On request |
| BioCat Heidelberg, Germany www.biocat.com Contact: Elke Gamer Phone: +49(0)6221-7141516 gamer@biocat.com | ProPlate Multiarray Slide System | Incubation Chamber System for Multiarray Slides enabling the formation of up to 16 leak-proof wells on any slide surface / Cell microarray studies | <ul style="list-style-type: none"> 7 x 7 mm square wells 15 - 350 µl well volumes Microtiter plate well spacing Rapid assembly and disassembly Tray holding up to four 16-well modules | 55.- (two 16-well modules & four clips) |
| | CytoSelect 48-well Cell Adhesion Array (ECM Array) | 48-well plate, coated by different extracellular matrix (ECM) proteins, 8 wells each: Fibrinogen, Collagen I, Collagen IV, Laminin, Fibrinogen, and BSA / Profiling of differential cell adhesion | <ul style="list-style-type: none"> Full quantitation of cell adhesion with no manual cell counting Fluorometric or colorimetric detection Plates precoated with uniform substrate layer of single ECM protein also available | 395.- (Fluor. detection) 375.- (Color. detection) |
| biostep Jahnsdorf, Germany www.biostep.de Contact: Ilona Marzian Phone: +49(0)3721-3905-16 i.marzian@biostep.de | Biological Stirrers MCS-101L, MCS-102L, MCS-104S, MCS104L, MCS-104XL | Stirrer system / For optimal suspension cell culture and the use of microcarriers | <ul style="list-style-type: none"> Unique softstart action to prevent cell damage Interval setting option Virtually heatless operation for incubator use Capacity from 125 ml to 5000 ml Speed range from 0 to 80 rpm | From 1,625.- |
| Eppendorf www.eppendorf.com Contact: Holger Eggert Phone: +49(0)40 538 01-190 eggert.h@eppendorf.de Contact: Heide Niesalla Phone: +49(0)40 53801-198 Niesalla.h@eppendorf.de | epMotion 5070 CB | Automated pipetting system / Seeding cell, media change, cytotoxicity, apoptosis test, soft agar assays | <ul style="list-style-type: none"> Automated liquid handler that can be placed in a laminar flow hood | On request |
| | Multiporator | Electroporator, Electrofusion system / Electroporation of animal cells, bacteria, yeast, electrofusion of mammalian cells, plant cells, oocytes | <ul style="list-style-type: none"> Flexible, modular system Soft-Pulse technology | Depending on model |
| GE Healthcare Munich, Germany www.gelifesciences.com Contact: Phone: +49(0)89 96281660 product@ge.com | BASE 2/10EH | Cell culture platform / Expansion of T-cells in suspension cultures for cell therapy applications | <ul style="list-style-type: none"> Electric rocker base, with integral temperature control & aeration pump | 4,860.- |
| | CO2MIX20 | CO ₂ / air mixture control module / Optional for use with BASE 2/10EH and BASE 20/50EHT models | <ul style="list-style-type: none"> Includes aeration pump; 0-15% CO₂ | 4,285.- |
| | PERFCONT2E | Perfusion controller / Optional for use with BASE2/10EH | <ul style="list-style-type: none"> Includes Watson-Marlow pumps for feed and harvest | 4,830.- |
| | Cellbag, 2L, BC10, Perf, DO | Single-use, sterile, cellbag bioreactor / Cellbag bioreactor for use with BASE 2/10EH | <ul style="list-style-type: none"> Contains internal perfusion filter Operating volume 0.1 - 1 liter | 258.- |
| | Cellbag, 10L, BC10, Perf, DO | Single-use, sterile, cellbag bioreactor / Cellbag bioreactor for use with BASE2/10EH, BASE20/50EHT models | <ul style="list-style-type: none"> Contains internal perfusion filter Operating volume 0.5 - 5 liters | 334.- |
| | BASE20/50EHT-L 220-240V | Cell culture platform / Expansion of T-cells in suspension cultures for cell therapy applications | <ul style="list-style-type: none"> Electric rocker with touchpanel Integral dual-sided temperature Dual-sided aeration, and loadcell | 19,320.- |
| | KIT20EHTD 220-240V | Cellbag Holder Kit / Kit required for BASE20/50EHTD dual-sided model | <ul style="list-style-type: none"> Incl. stainless steel tray 1x20 l with 2 temperature probes Stainless steel top plate and silicone heaterpad | 2,258.- |

Cell Culture Devices

| Company | Model name | Device type / Applications | Miscellaneous, Specialities, Generally | Price [EUR] |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| GE Healthcare (Continued) Contact: See page 54 | CO2MIX20 | CO ₂ / air mixture control module / Optional for use with BASE 2/10EH and BASE20/50EHT models | ■ Includes aeration pump, 0-15% CO ₂ | 4,285.- |
| | PUMP20-L | Peristaltic Feed/Harvest Pump / Optional f. use w. BASE20/50EHT | - | 1,050.- |
| | Cellbag, 10L, BC10, Perf, DO | Single-use, sterile, cellbag bioreactor / Cellbag bioreactor for use with BASE2/10EH and BASE20/50EHT | ■ Contains internal perfusion filter ■ Operating volume 0.5 - 5 liters | 334.- |
| | Cellbag, 20L, BC10, Perf, DO | Single-use, sterile, cellbag bioreactor / Cellbag bioreactor for use with BASE20/50EHT models | ■ Contains internal perfusion filter ■ Operating volume 1 - 10 liters | 367.- |
| | POD-L0113 | A single device integrating all controls associated with a bioreactor / Integrated controller & instruments | ■ Includes DOOPT, CO2MIX and O2MIX modules ■ For Wave Bioreactor 20/50EHT models | 18,900.- |
| GeSiM Grosserkrammsdorf, Germany www.gesim.de Contact: Steffen Howitz, Frank-Ulrich Gast, info@gesim.de Phone: +49(0)351-2695-322 | MicCell (microscope accessory: PDMS-based microfluidic system) | Microfluidic perfusion cell / Cell perfusion (e.g. shear stress, microelectrode arrays), cell adhesion tests, single-cell handling (laser tweezers, dielectrophoresis) | ■ Available for many inverted and upright microscopes ■ Standard chip-to-world connections ■ External control devices in a "Fluid Processor" box ■ Many accessories ■ GUI-based software for interactive and automatic operation | On request (depends on configuration) |
| Millipore Bioscience Division Schwalbach/Ts, Germany www.millipore.com Contact: technischer.service@millipore.com Phone: +49(0)6196-494-299 (DE) +41(0)433994049 (CH) +43(0)820874464 (AU) | Millicell Single-well inserts (standing) | Organotypic Insert (Biopore membrane, hydrophilic PTFE) / Organotypic cell cultures | ■ Pore size 0,4 µm available for 6-well plates, Qty/Pk: 50 | 310.- |
| | - | HA Insert (mixed cellulose ester membrane) / Co-Culture; migration, invasion and chemotaxis assays | ■ Pore size 0,45 µm available for 6-well and 24-well plates, Qty/Pk: 50 | 279.- / 203.- |
| | - | CM Insert (Biopore membrane, hydrophilic PTFE) / See above | ■ Pore size 0,4 µm available for 6-well and 24-well plates, Qty/Pk: 50 | 310.- / 231.- |
| | - | PCF Insert (Isopore membrane, polycarbonate, tissue culture treated) / See above | ■ Pore size 0,4 µm available f. 6-well plates, Qty/Pk: 50 ■ pore sizes: 0,4 µm, 3 µm, 8 µm and 12 µm available for 24-well plates, Qty/Pk: 50 | 310.- / 231.- |
| | Millicell Single-well inserts (hanging) | PET Inserts (PET membrane) / See above | ■ Pore sizes 0,4 µm, 1 µm, 3 µm, 5 µm and 8 µm available for 6-well, 12-well and 24-well plates, Qty/Pk: 48 | 201.- / 190.- / 178.- |
| | Millicell Multiwell Insert Plates | Multiwell Insert Plates; Plate design allows easy apical and basolateral access, tear-drop well design to reduce air bubbles under filter / See above | ■ Pore sizes 0,4 µm, 3 µm, 5 µm and 8 µm available for 24-well plates, Qty/Pk: 1 ■ Pore size 0,4 µm available f. 96-well plates, Qty/Pk: 1 | 98.- / 312.- |
| | - | Multiwell Insert Plates (PET membrane) / See above | ■ Pore size 1 µm available for 24-well and 96-well plates, Qty/Pk: 1 | 98.- / 324.- |
| | Milliccoat ECM pre-coated receiver plates | Collagen Type I-precoated receiver plates / Cell attachment, cell growth and differentiation | ■ Available as 6-well and 24-well plates, Qty/Pk: 5 | 77.- / 82.- |
| | | Poly-D-Lysine-precoated receiver plates / See above | ■ Available as 6-well and 24-well plates, Qty/Pk: 5 | 77.- / 82.- |
| | | Fibronectin-precoated receiver plates / See above | ■ Available as 6-well and 24-well plates, 5Qty/Pk | 144.- / 149.- |
| | Multiscreen MIC Filter Plate | 96-well plate, polycarbonate membrane / Migration, invasion and chemotaxis assays | ■ Available pore sizes: 3 µm, 5 µm & 8 µm, Qty/Pk: 10 ■ MIC (Migration, Invasion, Chemotaxis) | 667.- |
| | ECM Cell Culture Optimization Array | 96-well based array, included ECM coatings are collagen I, laminin, fibronectin & vitronectin / Identify optimal ECM type & concentrat. | ■ Available as colorimetric and fluorometric assay | 425.- |
| | Steriflip-NY | Cell strainer device / Generate single-cell suspensions | ■ Nylon mesh with 20 µm, 40 µm, 60 µm and 100 µm, Qty/Pk: 25 | 143.- |
| | Stericup | Vacuum-driven sterile filtration device including receiver flask available for volumes from 150ml-1000ml / Sterile filtration of cell culture media/components | ■ Available pore sizes: 0,1 µm, 0,22 µm and 0,45 µm ■ Available membrane materials: Express Plus (VP, GP), Durapore (GV, HV) Qty/Pk: 12 | 82.- to 232.- |
| | Steritop | Vacuum-driven sterile filtration device without receiver flask available for volumes from 150ml-1000ml / See above | ■ Available pore sizes: 0,1 µm, 0,22 µm and 0,45 µm ■ Available membrane materials: Express Plus (VP, GP), Durapore (GV) Qty/Pk: 12 | 70.- to 162.- |
| | Steriflip | Vacuum-driven sterile filtration device for volumes up to 50ml / See above | ■ Available pore sizes: 0,22 µm and 0,45 µm ■ Available membrane materials: Express Plus (GP), Durapore (GV, HV) Qty/Pk: 25 | 130.- to 148.- |
| Millex | Syringe filter for volumes up to 100ml / See above | ■ Available pore sizes: 0,1 and 0,22 µm ■ Avail. membrane materials: Express Plus (GP), Durapore (VV, GV, HV), Cellulose mixed ester (GS, HA); Qty/Pk: 50 | 122.- to 145.- | |
| New Brunswick Scientific Nijmegen, The Netherlands www.nbsc.com/bv Contact: See page 56 | CelliGen 115 Bioreactor | Bioreactor - Benchtop, autoclavable, 1.3 - 14 liters. Stirred tank system / Mammalian, plant and insect cell growth | ■ Entry-level bioreactor | On request |
| | CelliGen 310 Bioreactor | Bioreactor - Benchtop, autoclavable, 2.5 - 14 liters. Stirred tank system with packed-bed basket option / See above | ■ For research through production | On request |

Cell Culture Devices

| Company | Model name | Device type / Applications | Miscellaneous, Specialities, Generally | Price [EUR] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| New Brunswick Scientific (Continued) Contact: Suzy Kedzierski Phone: +31(0)24 3717 600 suzyk@nbsc.comsales@nbsbv.nl | CelliGen 510 Bioreactor | Bioreactor - Benchtop or mobile sterilizable-in-place, 19.5 & 40 liters. Stirred tank with packed-bed basket option / See above | ■ For R&D through production | On request |
| | CelliGen Pro Bioreactor | Bioreactor - Customizable, sterilizable-in-place, 75-650 liters / See above | ■ For pilot through production | On request |
| | FibraStage | Disposable Cell Culture System, 500 ml / Mammalian, plant and insect cells | - | On request |
| | Galaxy CO ₂ Incubators | CO ₂ Incubators - Direct-heat, 14, 48 & 170 liters / <i>In vitro</i> fertilization (IVF), stem cell research, traditional cell culture | ■ Fanless design ■ O ₂ control option | On request |
| | xCELLigence System RTCA SP Instrument (single plate instr.) | One 96-well plate station for mid-throughput use. Cells are cultivated in 96-well E-Plates with integrated microelectronic gold sensor arrays / Parallel analysis of multiple cellular parameters | ■ Continuous, label-free, non invasive real-time monitoring of living cells ■ Automated measurement ■ Impedance: 20 ohm - 10 kohm | On demand |
| Roche Diagnostics Mannheim, Germany www.roche-applied-science.com/sis/xcelligence/index.jsp Contact: Phone: +49(0)800 2200 4401 service.xCELLigence@roche.com | xCELLigence System RTCA MP Instrument (multiple plate instr.) | Six 96-well plate stations for parallel and flexible mid- to high-throughput options by up to six users. Cells are cultivated in 96-well E-Plates with integrated microelectronic gold sensor arrays / Parallel analysis of multiple cellular parameters | ■ Continuous, label-free, non invasive real-time monitoring of living cells ■ Automated measurement ■ Impedance: 20 ohm - 10 kohm | On demand |
| | xCELLigence System RTCA DP Instrument (dual plate instr.) | Three 16-well plate stations for parallel and flexible low- to mid-throughput options by up to three users. Cells are cultivated in 16-well E-Plates or CIM-Plates 16 with integrated microelectronic gold sensor arrays / Parallel analysis of multiple cellular parameters | ■ Continuous, label-free, non invasive real-time monitoring of living cells ■ Impedance-based automated cell invasion/migration-measurement | On demand |
| | CASY Model TTC | 21 CFR 11 compliant Cell Counter and Analyser System based on non-invasive Electrical Current Exclusion method including / Cell concentration, cell viability, cell volume, cell aggregation, cell debris | ■ Total Quality control of cell cultures ■ Total data documentation on board ■ Low running costs ■ Low sample volume ■ Nearly maintenance-free | On demand |
| Roche Innovatis Bielefeld, Germany www.innovatis.com Contact: Phone: +49(0)521 2997 300 info@innovatis.com | CASY Model TT | Cell Counter and Analyser System based on non-invasive Electrical Current Exclusion method / See above | ■ Fast and easy cell analyser ■ Low running costs ■ Low sample volume ■ Nearly maintenance-free ■ Interface for data transfer | On demand |
| | Cedex XS | Semi-automated image-based cell analyser. Based on the Trypan Blue Exclusion method / Cell concentration, cell viability, cell diameter, cell size, cell morphology, cell aggregation, specific growth rate and doubling time | ■ Rapid cell analysis ■ Maintenance free ■ Visual labelling of measurement results ■ Only 5 µl cell culture sample required ■ No focus adjustment necessary | On demand |
| | Cedex HiRes | 21 CFR 11 compliant fully automated image-base cell analyser. Based on the Trypan Blue Exclusion method / See above | ■ Automated staining and mixing ■ High resolution image recognition ■ Visual labelling of measurement results ■ Remote controllable ■ Comprehensive data management system | On demand |
| | Cedex | See above | ■ Automated staining and mixing ■ Visual labelling of measurement results ■ Proven technology for image analysis ■ Remote controllable ■ High precision Liquid Handling System | On demand |
| | Cellavista | Image based cellular screening device / Cell confluence, cell counting, colony detection, cloning, cell viability, protein expression, toxicity, wound healing, semi solid media applications, and many more | ■ Brightfield + up to 6 fluorescent channels ■ Whole well analysis ■ 2x to 40x objectives ■ Fully automated ■ Complete documentation of cellular growth | On demand |
| Tecan Crailsheim, Germany www.tecan.com Contact: Tobias Haessner Phone: +49(0)7951 9417-655 tobias.haessner@tecan.com | Freedom EVO | Laboratory robotic platform / Cell isolation, transfection, selection, cell identification, cell culture expansion, cell maintenance, stem cell differentiation | ■ Adherent and suspension cells ■ Culturing in tubes, plates or flasks ■ Automated maintenance over many months | From 30,000.- (Depending on configuration) |
| Thermo Fisher Scientific www.thermo.com/heracelli Contact: John Meech Phone: +44(0)7836 565304 john.meech@thermofisher.com | Heracell i | CO ₂ Incubator / Cell culturing under various conditions of carbon dioxide and (as an option) oxygen concentration (2 sizes: 150 litres and 240 litres) | ■ Mammalian cell culture ■ Stem cell culture | 7,424.- (150 liter) 10,753.- (240 liter) |
| | Thermo Scientific Nunc OptiCell 1100 & 2100 | Cell Culture System with new Format / Innovative space and medium saving cell culture format with reduced risk of contamination; for growth, imaging, transport, freezing, transfection & separation of adherent cells; OptiCell Max for hybridoma antibody production | ■ Adherent Cell Culture ■ Stem Cell Co-culture | 8.- (10 ml) 12.- (30 ml) |
| | Thermo Scientific Nunc UpCell | New Cell Culture Surface / Temperature responsive surface for non-enzymatic harvesting of single cells and cell sheets; preserves integrity of cell surface proteins & antigens; stem cell culture; flow cytometry; 3D tissue engineering; transplantation research | ■ Available formats: petri dishes, multi-dishes, 96 well plates | 17.- (3.5 cm Petridish) 26.- (6 well MultiDish) |
| | Thermo Scientific Nunc HydroCell | New Cell Culture Surface / The ultimate low cell binding surface enables cultivation of cells and cell clusters in suspension with maximum recovery of sample; minimal cell adhesion - high yield of cells and elimination of unwanted adhesion-induced differentiation; spheroid formation, embryoid bodies, neurospheres | ■ Available formats: petri dishes, multi-dishes, 96 well plates | 11.- (3.5 cm Petridish) 24.- (U96 Micro-well Plate) |