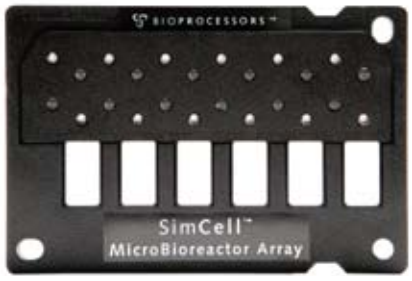
« Corning 96-Well plate with Ultra-Web nanofiber surface




» The SimCell MicroBioreactor chamber from BioProcessors

# Counter Culture

## *Think outside the box and grow your cells with culturing innovations.*

With the ever expanding scientific interest in cell analysis and bioproduction, unique inventions abound for cell culture procedures. From growth surface enhancements to mechanical manipulators to advances in chemistries and preparation, the new technology described here presents scientists with an array of choices to maximize growth and productivity.

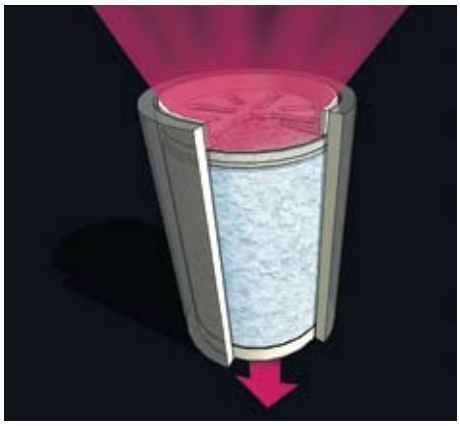
Biopharmaceutical process development and optimization can be accelerated using the **SimCell System**, from **BioProcessors**. It uses proprietary single-use MicroBioreactor Arrays, each housing six MicroBioreactor chambers. A transparent, gas-permeable membrane with imbedded sensors enables active feedback control of pH and dissolved oxygen within each chamber. Non-invasive cell density measurements are made optically. Because each MicroBioreactor is a scale-down model predictive of larger-scale fermentation bioreactors, the SimCell System can be used to develop and optimize cell culture processes at manufacturing scale. Cell culture experimental design and protocol execution is automated using a Robotics System and Data Solutions software suite, which can incubate and analyze hundreds of individual cell cultures simultaneously using batch or fed-batch protocols. This high throughput capability enables larger statistical factorial experiments to be executed, assuring process robustness through greater insight into the process design space. The SimCell System can be used for production clone selection and stability studies, media development and optimization, as well as process development and optimization experiments. With its high capacity and parallel processing capabilities, the SimCell System delivers more process characterization information with greater statistical power in less time than using shake flasks and benchtop bioreactors. **More information: www.bioprocessors.com**

**Corning** introduces **Ultra-Web Synthetic nanofiber surfaces** to improve the performance and functionality of cultured cells. These surfaces offer cells a more *in vivo*-like fibrillar topography that, unlike biological coatings, are more stable, more consistent lot to lot, and animal component-free. They can be modified by linking cell attachment and growth factors to improve the culture environment. Ultra-Web Synthetic Surfaces are composed of randomly orientated electrospun polyamide nanofibers with an average fiber diameter of 280 nm. This creates a culturing substrate that mimics structural components within the basement membrane or extracellular matrix. For harvesting, cells may be subcultured using standard cell dissociation techniques with trypsin, collagenase, or other enzymatic and nonenzymatic dissociation solutions or cell scraping. **More information: www.corning.com**

**AbD Serotec's Proteus Protein Purification Kits** combine the separation quality of gravity flow columns with the speed and ease-of-use of spin columns. Unique **StableFlo** technology regulates sample movement through the Protein A, Protein G, or IMAC resin matrix, increasing both purity and yield. For maximum convenience, each Proteus Kit contains pre-packed Spin Columns, ultrafiltration units and ready to use buffers. Proteus Protein A and G Kits are perfect for fast and simple preparative purification of antibodies. Proteus IMAC Kits are designed for simple, complete, and rapid purification of His-tagged recombinant proteins from bacterial cells, insect vectors, mammalian cells and yeast, under either native or denaturing conditions. All Proteus Kits are available in MIDI and MINI size formats. MINI Spin Columns can be used with a standard bench centrifuge and typically yield 1 mg of antibody or protein in just 20 minutes. MIDI Kits are suitable for large-scale preps of 20 mg. A special Proteus Pump Collar accessory can be fitted onto MIDI Spin Columns for convenient hands-free loading of large sample volumes. Proteus Kits offer several key advantages over existing purification technologies, making them ideal for researchers inexperienced in chromatography. These include ready-to-use resin cartridges which are pre-packed with wet soft agarose and stable for at least two years; buffers which are quickly and easily converted into working solutions; and simple, easy to follow protocols using basic laboratory equipment. **More information: www.abdserotec.com**

**Glycosan BioSystems** launches the **Extracel** family of hydrogel kits for 3-D cell culture,

» **Proteus Protein Purification Kits from AbD Serotec**



» **The DOSE IT peristaltic pump from Integra**

primary and stem cell cultivation, tumor xenografts, and tissue engineering. Extracel is a synthetic extracellular matrix (ECM) based on hyaluronic acid, a major component of native ECMs. With Extracel, researchers benefit from using a hydrogel that is chemically defined, easily modified, and highly biocompatible. Additional ECM proteins can be easily incorporated into Extracel to meet specific experimental requirements. Extracel provides a platform to which researchers can add specific amounts and types of growth factors and native ECM components for the desired cellular environment *in vitro* or *in vivo*. Importantly, researchers can also control stiffness, a critical regulator of cell differentiation. In addition, Extracel forms a hydrogel in 20 minutes at physiological pH and at temperatures ranging from 15˚ C to 37˚ C. The Extracel formulation is biodegradable and non-immunogenic, making it an ideal hydrogel for animal implantation studies. **More information: www.glycosan.com**

**Integra Biosciences** announces a new state-of-the-art peristaltic pump. The new generation **DOSE IT** pump makes the dispensing of culture media, buffers and other solutions easy and efficient. An intuitive multilingual user interface, coupled with large ergonomically designed display and keypad, makes the DOSE IT pump extremely simple to program and operate. Providing high accuracy dispensing across a broad range of dose volumes (0.1 ml–10 l) and flow rates (0.6 ml/min–5 l/min) the versatility of the DOSE IT reduces the need for a laboratory to have several single purpose pumps. **More information: www.integra-biosciences.com**

**Millipore** offers both stem cell lines and animal component-free medium especially for human stem cell culture. **MEL** cell lines are low passage, human embryonic stem cells (hES) that are available under license from the Australian National Health and Medical Research Council. Provided at early passage (p10–p12) in order to optimize a stable lifespan, the cell lines are designed to ensure extended research time in a stable, pluripotent state. Late passage cell lines can have a limited workable shelf-life as karyotype stability may decrease and pluripotent characteristics may shift to reflect a multipotent state. MEL cell lines grow as well defined colonies, with compact cells displaying high nuclear to cytoplasmic ratios and prominent nucleoli. **HEScGRO** medium is the first commercially available animal component-free medium tested successfully for human embryonic stem cell culture and shown to maintain hES cells in their undifferentiated state. The medium is serum-free and formulated to be ready to use for growing human embryonic stem cells. Media with animal-derived components are subject to wide variability and may contain factors that promote differentiation of hES cells, as well as toxic proteins or immunogens that can adversely affect the cells themselves. HEScGRO medium is a defined, animal component-free formulation that successfully addresses these problems and allows scientists to grow human stem cells with confidence. **More information: www.millipore.com**

To eliminate the possibility of interfering animal proteins, **Vector Laboratories** now offers **Animal-Free Blocker**, a plant-derived blocking agent or diluent for nucleic acid or protein blotting applications. This reagent contains no proteins of animal origin. Animal-Free Blocker can be used as an alternative to sera, BSA, casein or non-fat dry milk to avoid potential interaction between the immunoglobulin in these protein solutions and antibodies used for detection, especially anti-goat Ig or anti-sheep Ig. The immunoglobulins that may be significant in these commonly used blocking agents/diluents can bind to the detection antibodies and either reduce the signal or produce high background. Supplied as a 250 ml concentrate, with catalog number SP-5030, it produces 1250 ml of working solution. **More information: www.vectorlabs.com** ■

**Companies Mentioned in this Product Spotlight:**

**AbD Serotec** – www.abdserotec.com
**BioProcessors** – www.bioprocessors.com
**Corning** – www.corning.com
**Glycosan Biosystems** – www.glycosan.com
**Integra Biosciences** – www.integra-biosciences.com
**Millipore** – www.millipore.com
**Vector Laboratories** – www.vectorlabs.com

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