

Managing microbes

This listing of new product announcements covers microbiology, and includes fluorescence reagents, microscopy tools, a CO₂ incubator, an autoclave, information on microfiltration for epifluorescence and a disinfectant solution.

Biolog system

From Don Whitley Scientific

A system for bacterial and yeast identification

This system is available in automated or manual formats with the capability to identify over 1,100 species and groups, and can be used for microbiology studies in clinical, veterinary, plant and environmental sciences. All testing follows the same simple protocol, standardizing laboratory procedures and eliminating the need to use a range of tests for different organisms, says Don Whitley. A suspension of microbes is simply added to the microplates, which are supplied prepared. Each well contains one of 95 different carbon-based substrates. Moreover, there are MicroPlate test panels for Gram-negative, Gram-positive and lactic-acid bacteria and yeasts. The method for preparing all plates is identical, requiring only inoculation with a standardized suspension of organisms.

Reader Enquiry No. 100

Cardinal

From Optomax

A bacterial colony-counting system that is designed to eliminate manual adjustments

This high-throughput, automatic colony counting system has been upgraded with software that controls the video camera lens (to eliminate manual adjustments), counts Petri film and interfaces directly with Microsoft Excel software. It features a plate viewer, a high-resolution video camera and Windows-based software to control lens operation and bright- or dark-field illumination. Designed to analyse bacterial or mammalian cultures in a wide variety of growth media, this system can count Petri film and perform analysis of up to 600 plates per hour. Results are provided as counts, counts per plate, counts per millilitre, area and frame area. The system will also provide an audit trail.

Reader Enquiry No. 101

BBL Crystal

From Becton Dickinson

A complete microbial identification system

Like all other members of this family of products, these three new panels for Gram-positive, rapid Gram-positive and *Neisseria/Haemophilus* testing offer total laboratory standardization, says the company. This includes the convenience of one-step automatic inoculation, no reagent additions or oil overlays, a computerized database, and enhanced safety and accuracy. The Gram-



Becton Dickinson's BBL Crystal additions.

positive identification system is said to cover 121 organisms, providing four-hour identification of the more common isolates. There is also a four-hour identification kit for 35 *Neisseria/Haemophilus* species. BBL Crystal consolidates identification techniques, using both chromogenic and fluorogenic substrates to reduce laboratory costs, labour and total test time. There are also enteric/nonfermenter, rapid-stool enteric and anaerobe systems. All of the systems feature the same protocol — the user simply pours the inoculum directly into the device, rocks it to fill the test wells and then snaps on the lid. No pipettes or reagent additions are necessary, and the device stays closed and secure. Convenient, stackable ten-device trays save incubator space, and the colour-change and fluorescence reactions are said to be easy to read and process.

Reader Enquiry No. 102

Atmosphere generation systems

From Oxoid

Three new additions to the atmosphere generation systems range

For simple gas generation, Oxoid has introduced the CO₂Gen, CO₂Gen Compact and CampyGen Compact systems for producing the appropriate incubation conditions for microorganisms. The final atmosphere for the two CO₂ generation systems is approximately 5 per cent CO₂ by volume, which is said to be suitable for growth of many fastidious species, such as *Haemophilus* and *Neisseria*. The O₂ level is somewhat lower at 16 per cent with these systems. The CampyGen Compact is designed so that a small number of plates can be cultured under microaerophilic conditions. The final atmosphere is reduced to 6 per cent O₂ and is supplemented with approximately 14 per cent CO₂ for growth of *Campylobacter* species, and other microaerophilic organisms. Both Compact products utilize a sachet contained within a bag-and-clip system, and 1–2 plates can be cultured in each transparent bag. A see-through compact bag system allows plates to be observed for growth after 24 h, without affecting the culture of more slowly growing organisms.

Reader Enquiry No. 103

Fluorescence and microscopy

Microbiology reference

From Corning Separations Division

A new reference for staining microorganisms using epifluorescence microscopy

Created as a reference tool for those using membrane-based microfiltration with epifluorescence microscopy, this is a resource to assist researchers with stain and membrane selection. Entitled *Staining Microorganisms for Epifluorescent Detection and Enumeration*, this publication begins with a discussion of the basics, followed by more detailed information on general, organism-specific and physiological stains. A step-by-step EpiCount Method for the epifluorescence application is included.

Reader Enquiry No. 104

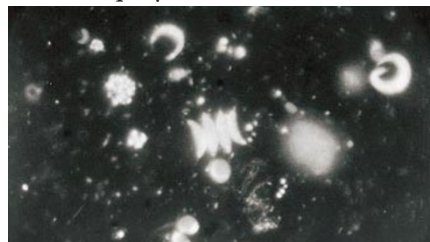
Epifluorescence microscopy

From Osmonics

Direct observation and counting of viable and non-viable microorganisms in >30 min

According to the manufacturer, this technique compares favourably with traditional culturing methods, which may require incubation times of up to 72 hours. Traditional methods can underestimate the total number of microorganisms due to the selective nature of the media employed, and the fact that they do not account for non-viable microorganisms or the tendency of microorganisms to form clumps or microcolonies. The epifluorescent microscopy technique is said to represent the total population of viable and non-viable microorganisms, providing improved sensitivity over traditional culturing and pour-plate procedures. Poretics black polycarbonate membrane filters are used to provide the same advantages as regular polycarbonate membranes, but have been specially treated to give a very low autofluorescence, says Osmonics. This characteristic permits the observation of high viability of microorganisms on the surface of the membrane against a non-distracting background.

Reader Enquiry No. 105



Low-background epifluorescence from Osmonics.



Syto 13 live-cell nucleic acid stain shows phagocytosis of *Anabaena sp.* by a neutrophil.

Fluorescent probes

From Molecular Probes

Reagents, kits and fluorescence techniques for bacteriology, cell biology and microbiology

Molecular Probes offers nearly 3,000 fluorescent probes and other reagents for work with microorganisms or animal cells. Many are sensitive at the single-organism level and are easily adapted to high-throughput, automated analysis. The Syto stain kits use visible light-excitable stains and penetrate most bacterial species to label DNA and RNA with bright green or red fluorescence and low background. There is a bacterial counting kit for flow cytometric enumeration of bacteria. The SytoX green nucleic acid stain penetrates only compromised bacterial and animal cell membranes and exhibits >500-fold fluorescence enhancement upon binding to nucleic acids, states the manufacturer. There are also bacterial viability kits compatible with microscopy, fluorometry and flow cytometry, as well as kits for distinguishing Gram-positive and Gram-negative bacteria and showing whether cells are intact or permeabilized. For detecting contamination of cell cultures, there is a kit with three fluorescent dyes to detect and identify fungal and bacterial contaminants. There is also the MycoFluor kit to detect *Mycoplasma* contamination in cell cultures.

Reader Enquiry No. 106

Cobra

From Vision Engineering

A microscope system that uses expanded-pupil (EP) technology

Designed for less fatigue in microscopy, the microscope uses enlarged eyepieces and increases the distance between the operator's



The Cobra's hood — an answer to fatigue.

eye and the eyepiece, allowing more head movement in all three planes. Coupled with high-quality optics, EP viewing enables the user to comfortably view high-resolution images with less eye, neck and back fatigue, says Vision. The system features zoom magnification up to $\times 160$ with a working distance to 312 mm. Refractive-disk technology and a straight optical path improves resolution at high magnification, as well as the depth of field and colour rendition. A wide range of mounting, lighting and photomicrography options is available.

Reader Enquiry No. 107

Around the bench

Century autoclave

From Steris

For sterilizing a wide range of laboratory products and infectious waste

The system offers a touch-sensitive screen control, an 18-cycle programmer, integral cycle print-out and non-lubricated door seals for ease-of-use, reliability and enhanced operator safety. It features a 'hands-free' powered vertical sliding door that is operated by a foot pedal, freeing both hands for loading and unloading. The unit's door seal has been designed so that no messy silicon or grease lubricant is necessary, and is guaranteed to be replacement-free for two years. The 316 stainless-steel, fully jacketed chamber is also guaranteed and, according to Steris, users can expect at least 15 years of trouble-free performance. Its modular piping system has fewer components and connectors, which is said to reduce maintenance and service time. It is available in sizes from 50–250 l and with gravity, pre-vacuum and isothermal options, and 30-min cycle time, using a fast cooling facility.

Reader Enquiry No. 108

Flexible shakers

From Gerhardt

Designed with a vertical stacking system to increase load capacity, without expanding the original footprint of the machine

According to the manufacturer, these CE-compliant units can routinely handle loads of up to 30 kg with either reciprocal or orbital motions available. Models are available in two sizes: the small 2 series units



No walking with Gerhardt shakers.

have a 20-mm throw and the large 5 series units have a 50-mm throw. All the shakers are programmable to the nearest r.p.m. and minute, and at the end of the run the shaker will automatically stop, allowing unattended operation. A wide range of attachments is available to enable many types of container to be used, as well as custom-made options to accommodate almost any need. An incubated shaker completes the range, and uses the same compact, efficient silent-motor system as the other shakers. This system is said to provide a low centre of gravity, reducing 'walk' during use.

Reader Enquiry No. 109

Water baths

From Techne

A range of twenty water baths that operate over the range from -40°C to $+250^{\circ}\text{C}$ with a capacity from 8–48 litres

Based on the company's unheated baths and Tempette and Tempunit thermoregulators, these units can be used either as open water baths or as closed circulating systems for external apparatus. The thermoregulators bridge to one of four sizes of water bath. Moreover, these baths incorporate carrying handles, seam-free stainless steel tanks for easy cleaning and stoved enamel steel outer cases. The four immersion thermoregulators offer a choice of temperature ranges, temperature stability and analog or digital controls. A circulating pump with external corrections, adjustable over-temperature and low-liquid-level cut-outs are standard on all models. A cooling coil is an optional extra on the two lower models, but standard on the two higher models. At the bottom end of the range, the Tempette offers a temperature range of -20°C to 95°C and covers most routine applications. The top model operates at temperatures from -40°C to 250°C , which are selected and displayed digitally. There is an audible alarm, a dual-pressure and suction pump and a RS232 port.

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READER ENQUIRY NO. 14

Galaxy S

From R S Biotech

A CO₂ incubator for cell biology and tissue culture applications

Using a front-door keypad to improve operating efficiency, this incubator precisely controls temperature, CO₂ content and humidity within the specifications of current regulations. There are also alarm and temperature cut-out facilities included as standard. A dry-wall heat profiling is said to eliminate the need for a fan, which should benefit cell-biology and tissue-culture applications. Air is moved by thermodynamic convection and the response to change is said to be very rapid, for stable temperature with minimal gradient. Convectino is said to dramatically reduce the potential for contamination and improve culture conditions by maximizing CO₂ dispersion, reducing sample evaporation and eliminating much of the vibration that can impede fragile cell adhesion. Solid-state, infrared CO₂ sensing helps to ensure precision control of CO₂ concentrations, and is unaffected by humidity (maintained at a stable 95 per cent relative humidity). The unit offers a 170-l internal volume, and there is an

option for three inner glass doors, which can be accessed separately and help reduce temperature variation that occurs when opening the main door.

Reader Enquiry No. 111

Microcide SQ

From Global Biotechnologies

A dual quaternary ammonium disinfectant and cleaner concentrate

This formulation has been (US) EPA registered to kill 108 different bacteria, yeast, fungi and viruses. According to the manufacturer, it has been shown to kill 24 different viruses, including cytomegalovirus, HIV-1 (AIDS) and HBV (hepatitis B), as well as T1 and T4 bacteriophage. Much of the testing was done on clinical isolates from ongoing infections and in the presence of five per cent serum and 300 p.p.m. hard water to help comply with OSHA blood-borne pathogen regulations. Microcide SQ can effectively clean and disinfect work areas, equipment, instruments, as well as hoods and incubators. The product can also be used as an ultrasonic cleaning and disinfectant solution and to presoak instruments. When diluted, it

has a pH of 8.9 and is safe for use on fabric, rubber, glass, plastic and metals, including stainless steel and aluminium.

Reader Enquiry No. 112

Internet accessible

Sheffield website

From Quest International

Website on high-grade media components, such as peptones and yeast extracts

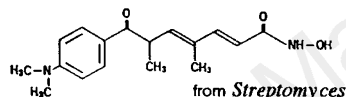
This Internet site provides easy access to up-to-date product specifications and information on almost all fermentation and cell tissue culture products in the Quest product range: www.sheffield-products.com. A search engine is incorporated to enable users to select a product based on specified data. Such information includes physical and chemical information, an amino-acid profile or a microorganism product that must be suitable for *Escherichia coli*, for example.

Reader Enquiry No. 113

These notes are compiled by Brendan Horton from information provided by the manufacturers. For more details, fill in the reader service card bound inside the journal.

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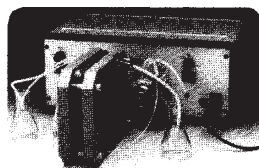
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