

new products

The descriptions of the new products

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Andreas Mandelis

Focus on bioinstrumentation and biotechnologies

Pintool heads for liquid handling

Agilent has partnered with V&P Scientific in San Diego, California, to provide custom pintool heads that fit the Bravo automated liquid handling platform and Agilent vertical pipetting station. As the trend toward assay miniaturization continues, the need to make nanoliter transfers has increased. Pintool heads enable users to convert either a 96- or 384-well pipetting system or plate handler into a pintool workstation that will deliver from 3 nl to 5 μ l using 96, 384, or 1536 pintools. Instead of aspirating through tips, the custom heads use the surface tension of pins to deliver precise nanoliter amounts for multiplexing assays to any position on the instrument deck. *Agilent Technologies Inc, Life Sciences and Chemical Analysis Group, 5301 Stevens Creek Boulevard, Santa Clara, CA 95051-7201, <http://www.velocity11.com>*

Laboratory detector module

Ametek's new LDM100-GEM is an integrated gamma-ray spectrometer for fixed and mobile counting room applications. The self-contained laboratory detector module (LDM) builds on technologies developed for the Ortec detective family of portable nuclide identifiers. At the heart of the LDM100-GEM is a high-purity germanium detector element cooled by a miniature Stirling cycle cooler. The HPGe crystal is encapsulated in a reliable cryostat. The instrument is powered from a small 10–17 V_{dc} supply and has a built-in battery backup that allows it to run an addi-

tional three hours in the event of a power failure. The LDM includes a high-stability digital signal processor. All that is required for a complete gamma spectrometry system is an AC or DC power source and a PC on which to install the accompanying Maestro multichannel analyzer software. *Ortec Products Group, 801 South Illinois Avenue, Oak Ridge, TN 37830, <http://www.ortec-online.com>*

Mass spectrometer for biomolecules

Shimadzu Scientific Instruments has added the Axima Resonance time-of-flight mass spectrometer to its line of Axima MALDI (matrix-assisted laser desorption ionization) systems. The combination of a quadrupole ion trap and a reflectron TOF analyzer results in high sensitivity and mass accuracy for the structural characterization and sequencing of biomolecules. The Axima Resonance provides molecular sequencing (MSn) spectra for a wide range of analytes, including pharmaceutical compounds, peptides, and lipids. The power of the ion trap allows the high-resolution selection of parent ions and highly controlled collision-induced dissociation for high-sensitivity MSn acquisitions. With an isolation resolution of more than 1000, researchers can analyze samples with similar nominal mass, even those with overlapping isotopic distributions. *Shimadzu Scientific Instruments, 7102 Riverwood Drive, Columbia, MD 21046, <http://www.ssi.shimadzu.com>*

Bottle-top burette

BrandTech Scientific has introduced Brand Titrette, a bottle-top burette to perform titration within ASTM and ISO error limits for class A glass burettes. Its precision is achieved through a novel magneto-resistive measurement system that detects actual piston rod movement. The Titrette is suitable for most titrants in concentrations up to 1 mol/l. The instrument mounts directly on most titrant bottles and eliminates poured transfer. The large digital display prevents meniscus reading errors, and a recirculation valve simplifies priming. The titrating tube adjusts for length and height to accommodate any size of titration vessel. The compact design fits conveniently on the benchtop, and battery power makes the Titrette suitable for use in the laboratory or field. An optional RS-232 interface is available for direct data transfer to a PC. *BrandTech*

Scientific Inc, 11 Bokum Road, Essex, CT 06426-1506, <http://www.brandtech.com>

Syringe pump

Harvard Apparatus has announced a new PHD Ultra syringe pump that offers smooth, accurate, precise flow with maximum versatility. It can handle flow rates from 1.56 pl/min to 220 ml/min. Models are available as infusion only, infuse/withdraw, programmable, and push-pull. Multiple syringe holders can accommodate 2 to 10 syringes for multichannels or larger reservoir capacities. Both standard and remote models are available; the pumping mechanism on remote models is up to 30 ft away from the control unit. The pump can be placed on its end to maximize performance for certain applications, and the screen turns with the pump. *Harvard Apparatus, 84 October Hill Road, Holliston, Massachusetts 01746, <http://www.harvardapparatus.com>*

UV laser with true CW output

The new Genesis 355-150 S from Coherent delivers more than 150 mW of TEM₀₀ output. A true CW source of 355-nm UV laser light, it avoids the potential high peak power problems that arise from older quasi-CW lasers. With low output noise and a single spatial output mode of $M^2 < 1.2$, the laser is suitable for high-throughput applications that need the best signal-to-noise ratio data. The Genesis 355-150 S is intended to increase the throughput of live cell applications such as egg and fertilized-egg sorting, for which the peak power of alternative, mode-locked lasers poses significant risk of mutagenic damage to the DNA. It is also a suitable source for other fluorescence-based applications, including confocal microscopy, for which the short laser wavelength and low M^2 beam provide optimum excitation of Hoechst and Indo dyes. Moreover, the confocal microscopes often rely on fiber delivery that can be problematic for the high peak power levels of quasi-CW lasers. *Coherent Inc, 5100 Patrick Henry Drive, Santa Clara, CA 95054, <http://www.coherent.com>*

Life science spectrophotometer

The new Vision life science spectrophotometer from Hoefer includes 16 predefined methodologies for nucleic acid quantification, protein assay kinetics, cell-density measurements, and cy-dye



labeling of polymerase chain reaction probes. It accommodates the standard curve and up to 90 custom protocols. The combination of the life science methods with the rapid scanning, kinetics, and concentration capabilities makes the Vision spectrophotometer suitable for use in molecular biology and biochemistry laboratories. The

visualization of the nucleic acid scan with the full graphic display is particularly useful, especially for RNA samples in which impurities might be present in the 230-nm region but do not adversely affect the absorbance of the 260/280 ratio. The Vision life science spectrophotometer has novel Gifford optics for high energy and a xenon source for long life. *Hoefer Inc, 84 October Hill Road, Holliston, Massachusetts 01746, <http://www.hoeferinc.com>*

Pico-injector

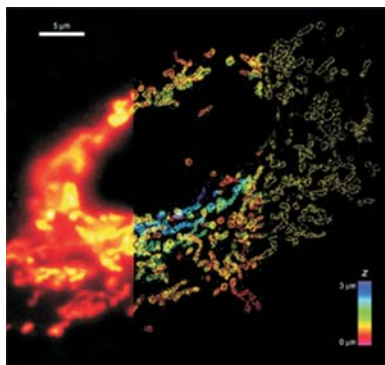
Warner Instruments has introduced the PLI-10 pico-injector, an economical solution for reliable, large-volume (10–100 pL) micropipette injections. The pico-injector features the same high-quality multistage regulator as the more expensive models and delivers precise pressure control to the pipette. An easy-to-read digital panel displays injection



pressure, time, and count. The pico-injector offers three options for timer control: a front-panel push button, a foot switch, and an external trigger input BNC (Bayonet Neill-Concelman). The versatile PLI-10 is suitable for applications such as extracellular sample delivery and *Xenopus* oocyte injections. *Warner Instruments LLC, 1125 Dixwell Avenue, Hamden, CT 06514, <http://www.warneronline.com>*

High-speed camera for cellular microscopy

An ultrasensitive, high-speed camera has helped US researchers see the 3D



spatial relationship between cellular structures—mitochondria and microtubules—with nanometer-scale resolution. Using photo-activated fluorescent labels, the camera is sensitive enough to detect single molecules and gives rise to 3D stochastic optical reconstruction microscopy. The system can resolve fine structural detail with a lateral (x,y) resolution of 20–30 nm and axial (z) resolution of 50–60 nm. By exciting only a stochastic subset of single labels with an activating laser pulse, researchers can obtain a low-light image of individual molecules that can be discerned as single diffraction-limited spots. The process allows the position of each fluorescent molecule to be determined with nanometer precision. Understanding how those structures interact paves the way for future research into cellular processes. *Andor Technology plc, 425 Sullivan Avenue, Suite 3, South Windsor, CT 06074, <http://www.andor.com>*

Live cell imaging and analysis

The PerkinElmer Opera high-content screening system can be used to analyze G-protein-coupled receptor–ligand interactions in stable recombinant cell lines expressing specific GPCRs. The pharmaceutical industry currently is focusing more than 40% of its drug discovery programs exclusively on the GPCR superfamily. Although assays targeted at downstream GPCR signaling events have allowed characterization of the receptors, few nondestructive assays enable analysis of the receptor–ligand interaction at the cellular level. The Opera system provides cell-based screening and high-content analysis and has yielded improved approaches to detecting and quantifying GPCR responses in living cells. The system's high throughput confocal imaging capability combines high-resolution fluorescence microscopy and automated image analysis. Thanks to the availability of high-quality cell lines, the system provides a sensitive platform for quantita-

tive monitoring of ligand-induced cell changes in living cells. *PerkinElmer Inc, 940 Winter Street, Waltham, MA 02451, <http://www.perkinelmer.com>*

Metrology system in 3D

Veeco Instruments has released its NP Flex 3D metrology system that characterizes surfaces previously too difficult to measure because of size or part orientation. The NP Flex combines non-contact, white-light optical profilers with an open-access design to enable rapid, 3D data acquisition and analysis on a wide range of samples for precision-machining applications. The NP Flex uses a gantry design to provide more than 300 degrees of access for large samples. The optional swiveling optical head permits routine investigation of highly curved samples and beveled edges. The system's white-light interferometric technology provides greater accuracy, repeatability, and data density than is possible with contact instrumentation. Other features include long working distance objectives, a proprietary objective crash-mitigation system, automation and field-stitching software, and ultra-uniform dual-LED illumination. *Veeco Instruments Inc, 1 Terminal Drive, Plainview, NY 11803, <http://www.veeco.com>*

GPC/SEC software

Viscotek, a Malvern company, has introduced OmniSEC, a flexible, powerful, and easy-to-use software for gel permeation chromatography/size exclusion chromatography. With an intuitive, user-friendly interface and features useful for both polymer and protein scientists, OmniSEC supports not only all the detectors in the Viscotek range but also those from other suppliers. GPC/SEC systems are routinely configured with a range of different detectors to accurately characterize eluting size-fractionated samples. OmniSEC supports all of the commonly used analysis methodologies and offers a wide range of detector and calculation options. Features include an advanced polymer branching view, a protein method that enables the calculation of molecular weight without prior knowledge of refractive index increment (dn/dc) or concentration, and a variable dn/dc correction for precise measurement at low molecular weight. *Malvern Instruments Ltd, Enigma Business Park, Grovewood Road, Malvern, Worcestershire WR14 1XZ, UK, <http://www.malvern.com>*