

Getting automated for autumn

As the leaves descend, so does new technology, with automated systems for western blotting and cytogenetic analysis, a spin on the centrifuge and a microarray for cancer gene expression studies.

All is not quiet on the western front, with Bio-Rad's release of the Western Processor. This device allows fully or semi-automated western-blot development. It has the memory capacity for ten user-defined protocols and will deliver and remove up to six different reagents, with single or multiple deliveries of each reagent. According to the manufacturer, the user retains the flexibility of manually intervening at any stage by incorporating alarmed manual steps, a feature useful for those wanting to follow the development of the final colourimetric result. TECAN has also released an automated western blotting system, profiBLOTII, which dispenses wash and reagent volumes of 250 µl to 3000 µl and is suited to the processing of western strips, particularly in a clinical diagnostic setting. Up to 36 strips can be processed on one tray and there is programming capacity for 20 protocols. For those analysing expensive or limited protein samples, CHEMICON International, Inc. offers the Re-Blot™ Western Blot Recycling Kit, which contains a stripping solution that removes antibodies and

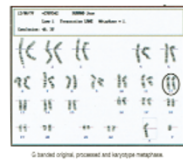


Extra spin with the Optima™ MAX personal Ultracentrifuge System from Beckman Coulter

their corresponding chemiluminescent or radioisotopic signals from membrane blots without destroying the protein sample. It is, however, not suitable for stripping colourimetric substrates.

One small step for man, a leap for benchtop centrifuges: Beckman Coulter, Inc., has broken the 1,000,000 × g barrier with the Optima™ MAX personal Ultracentrifuge System. The MLA-130 fixed angle rotor, which holds ten tubes of 2.0

ml each, can rapidly pellet and separate proteins and nucleic acids, reaching a maximum force over 1,000,000 × g. While other rotors in the series can't reach the same g force, they nevertheless cover a range of applications and volume requirements. The MLS-50 swinging bucket rotor spins four tubes of 5 ml and tops at



IMSTAR's CYOTGEN™ KARYO zooms in on metaphase spreads

268,000 × g; the MLA-80 fixed angle spins 64 ml to over 440,000 × g, as does the MLN-80 near vertical tube rotor which is suitable for CsCl plasmid isolations.

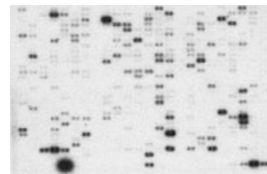
IMSTAR provides tools for cytogenetic analysis with the CYTOGEN™ range of digital imaging systems, incorporating designer software, camera technology and adapted hardware. The CYTOGEN™ FLUOQUANT FISH imaging system automatically captures multiple probe images on a metaphase spread, and provides fluorescence karyotyping and quantitative counting of probe localization. A comparative genome hybridization module enables quantitative analysis of changes in relative copy number of chromosome material. CYTOGEN™ KARYO identifies and classifies chromosomes in a metaphase image, enhances chromosome contours and banding, and automatically distinguishes the boundaries of overlapping or touching chromosomes.

For the detection of gene expression gone awry, CLONTECH Laboratories, Inc. offers the Atlas™ Human Cancer cDNA Expression Array. The array is a positively

charged nylon membrane spotted with immobilized cDNAs representing well-characterized, cancer-related genes, including oncogenes, tumour suppressors and cell cycle regulators. The array is analysed by routine ³²P-hybridization techniques, and two arrays are included in each purchase so that the expression profiles of two RNA populations can be compared in a single experiment. This array, which is a complement to CLONTECH's Atlas™ Human and Atlas™ Mouse cDNA arrays, is the first in a series of specialized arrays to be developed by the company to target specific areas of research.

Size counts when it comes to PCR, and Roche Molecular Biochemicals (formally Boehringer Mannheim Biochemicals) has extended the capabilities of its PCR systems, with the cloning of a 36-kb PCR DNA fragment using the Expand™ Cloning Kit. This system takes advantage of the processivity of *Taq* DNA polymerase and the proofreading accuracy of *Pwo* DNA polymerase (which has both 5'→3' and 3'→5' exonuclease activity) to amplify DNA fragments of 7–36 kb. PCR fragments are blunt-end cloned into cosmid vectors before packaging into λ bacteriophages, which are then used to infect *Escherichia coli* and subsequent selection of positive clones.

Quantum Biotechnologies, Inc. has released a formamide-free solution, Chroma-Hyb™, which is claimed to give brighter FISH signals, detected within 30 minutes. The absence of formamide allows re-hybridization of the same slides, and processed samples are stable for weeks without loss of signal intensity. For those concerned about their image, Vector Laboratories offers the ImmEdge™ Pen, a hydrophobic barrier pen for use in immunohisto-



All in an array with CLONTECH's Atlas™ Human Cancer cDNA Expression Array

chemistry or *in situ* hybridization. Designed specifically for frozen or paraffin-embedded tissue sections mounted on glass slides, this water-repellent barrier keeps reagents localized on the tissue section and prevents mixing of reagents when staining different sections on the same slide.

Notes compiled by Carina Dennis

For more information, call:

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