and flow disturbance. Most significant abnormalities can be detected from the image alone, but quantitative measurement of flow characteristics is also possible with this system. The technique also shows promise for the evaluation of the vascular supply of abdominal and pelvic organs, and for obtaining clinically useful information related to organ perfusion and tumour neovascularity. With this technique, we may finally begin to see some useful degree of ultrasound tissue characterization based on tissue perfusion patterns. □

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Biophysics sampler

An intracellular ion measurement system, a cell length monitor, and a new perspective on NMR are part of this week's feature on the discipline where physics meets biology.

CALCIUM ions have attracted interest of late by virtue of their action as intracellular second messengers. Hamamatsu Photonics Europa has developed a 2-dimensional **intracellular calcium ion measurement system** to enable researchers to collect data from fluorochrome stained samples (*Reader Service No. 101*). The system consists of a video camera equipped with a silicon intensified target, an image processor with a $688 \times 512 \times 16$ bit memory, and an IBM PC/AT plus associated software. Hamamatsu says the system's camera can detect light levels down to 10^{-4} lux with low background noise. The image processor is capable of performing image manipulations such as averaging, subtraction, zooming, histograms and intensity profiles, and it has a scaler, timer, 256-pseudo-colour display and remote control.

Sterilin distributes a line of Nucleopore polymer bonded membranes and holders for **chemotaxis studies** (*Reader Service No. 102*). The membranes have cylindrical pores, manufactured by fission element bombardment, that Sterilin says facilitate rapid cell migration and reduce incubation time. The membranes are thin, to allow slower moving cells, such as monocytes and macrophages, to be studied. The membranes are available with or without the wetting agent PVP, and come in sizes from 13 mm to 293 mm in diameter, with pore sizes from $0.01 \mu\text{m}$ to $12 \mu\text{m}$. Prices range from £35 to £80 (UK) for packs of 100.

Varian has teamed up with Sun Microsystems to offer a new line of **NMR data-systems** for Varian's VXR series of research NMR spectrometers and VIS family of *in vivo* imaging NMR spectroscopy systems (*Reader Service No. 103*). The new VXR 5000 series is based on the Sun-3 family of workstation computers, and come with Varian's NMR software over a UNIX operating system shell. All tasks relating to spectrometer control, such as pulse sequence control, automatic magnet shimming, or sample management, benefit from the series' computing speed of 1.5 to 4 million instructions per second (MIPS). The software has a 2-dimensional analysis tool that automatically finds and annotates cross peaks in 2-dimensional correlated spectra and develops a connectivity table, and that has an interactive deconvolution capability to unravel overlapping peaks. The VXR 5000 series is priced from \$39,500 (US).

HVS Image Analysing Ltd has a **cell-length monitor** especially suited for measuring the contractions of heart muscle cells perfused with stimulants (*Reader Service No. 104*). The SP144 performs non-contact measurements of a cell 50 times per second, enabling it to follow contractions in real time. The system

The HVS Image Analysing monitor specializes in the contraction of heart muscle.

includes a monitor and an image analysis unit, and is meant to be used with a microscope equipped with a video camera. Outputs for length and rate of change of length are provided for connection to a chart recorder. Interfaces to microcomputers are an optional extra. The SP144 carries a \$5,750 (US) price tag.

A multiple excitation **spectrofluorometer system**, the Series 300, has been developed by H & L Instruments for intracellular measurements using the biological probes furan-2, indo-1 and BCECF (*Reader Service No. 105*). The \$20,500 (US) system includes the spectrofluorometer, plus a PC/AT computer with a 20 megabyte hard disk, a 640×350 inch EGA colour display and an HP ThinkJet printer. Using windows, the CRT indicates excitation and emission intensities and wavelengths, PMT high voltage, sample temperature and elapsed time, as well as derived values of ratio, total fluorescence, polarization or anisotropy. Both T-format and L-format configurations are available. Sample temperature is programmable using a Peltier heating/cooling system, and the cuvette stirrer ensures non-vortexed mixing of the sample. □

These notes are compiled by Carol Ezzell from information provided by the manufacturers. To obtain further details about these products, use the reader service card bound inside the journal. Prices quoted are sometimes nominal, and apply only within the country indicated.