

Advertisement feature

# Curing light deprivation

## Fluorescence technology brightens up

Fluorescent images are common in many of the research articles that are published in scientific journals. Consequently, researchers are intensely interested in the development of new fluorescent labeling technology. And the stakes are getting higher, because without proper equipment for cell and protein imaging, scientific data are less credible. The companies listed below recently introduced new imaging systems and accessories to shed more light on the world of imaging.



Image supplied by Fujifilm Life Science USA

### Imaging Systems

The **DS-Qi1 Monochrome Digital Camera**, from **Nikon Instruments**, is designed for fluorescence applications and features a 1.3-megapixel CCD that captures microstructures at a resolution of 1280 x 1024 pixels. The DS-Qi1 features 17,000 electron full well capacity with only eight electron read noise for a dynamic range of over 2000:1 while maintaining linearity necessary for quantitative imaging applications. In addition to high dynamic range and linearity, the DS-Qi1 also incorporates a programmable gain amplifier for low-light levels. Stan Schwartz, vice president of Nikon Instruments said, "The DS-Qi1 provides live cell researchers with the most sophisticated CCD technology available for demanding digital imaging applications."

The new **KODAK Image Station 4000MM Pro**, from **Eastman Kodak Company**, is designed for quantitative imaging of chemiluminescent, fluorescent, and chromogenic labels in gels, blots, and plates. The system incorporates an automated precision lens, as well as automated excitation and emission filters combined with a cooled 4-million pixel resolution CCD camera, 16 bit imaging capability, and Molecular Imaging Software. Automated computer controlled configuration minimizes setup time.

**Syngene** announces **Dyversity**, its new multi-functional imager that can detect nanogram quantities of protein stained with

Invitrogen Pro-Q Diamond. It provides an excellent method for proteomic researchers who want to rapidly image 1D and 2D protein gels. Laura Sullivan, Syngene's Divisional Manager explained, "We have designed Dyversity 6 to include a high resolution 6.3 mega pixel CCD camera so that unlike a laser scanner the system can simultaneously excite at the optimum fluorescent or visible light excitation peak across an entire gel."

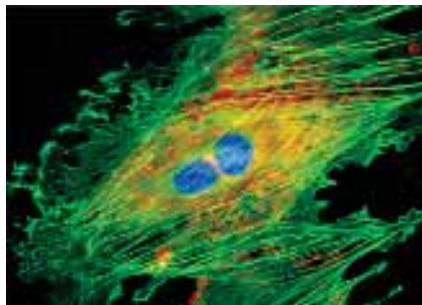
The **Fujifilm Life Science FLA-7000** uses proprietary imaging technology to accomplish radioisotopic and fluorescent detection with high throughput and high sensitivity. The system has a maximum of five lasers covering a very broad fluorescent range, and can perform silver-stained and CBB-stained gel documentation, as well as densitometry. The FLA-7000 features the Fujifilm Imaging Plate (IP) storage phosphor technology and formulations to optimize radioisotopic sensitivity and resolution which allows for imaging and quantification of isotopes from X-rays and neutrons to P32 and tritium.

The **KH-7700** is a digital microscope from **Hirox Company** that integrates a digital camera, light source, LCD monitor, computer and software in one unit. Capable of live imaging at 2 million pixels and still captures at up to 30 million pixels, the KH-7700 enables real time display and on-screen 2D and 3D measurements with 3D profiling and interactive topographic

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Omega Optical offers filter sets for fluorescent proteins and applications. These filters maximize excitation and emission energy while minimizing background.



The KH 7700 from Hirox Company is a digital microscope capable of live imaging at 2 million pixels, and enables real time display and on screen 2D and 3D measurements.

**"Our 6.3 mega pixel CCD camera can simultaneously excite at the optimum fluorescent or visible light excitation peak across an entire gel."**

Laura Sullivan  
Divisional Manager  
Syngene

displays. A range of lenses are available for different applications. Recording is facilitated with the DVD/CD and HD recording capabilities built-in. The KH-7700 is suitable for portable applications as well.

**HORIBA Jobin Yvon** announces its new **FluoroMax-4 Spectrofluorometer** for basic research, analytical measurements, and quality control. The FluoroMax-4 uses an ozone-free xenon arc lamp for broadband coverage from the UV to near-IR. For rapid fluorescence-lifetime measurements, an optional time-correlated single-photon counting (TCSPC) accessory with interchangeable, pulsed Nano-LED solid-state sources covers wavelengths from 265 nm to the near-IR.

#### Accessories

**NanoDrop Technologies** has announced **Version 2.6.0 operating software** for its NanoDrop ND-3300 Fluorospectrometer, an instrument that enables fluorescence measurements of 1-2 microliter samples without cuvettes or capillaries. The software features a fluorescence profiler used to determine the optimal excitation source for any fluorophore by exciting the sample sequentially with three light emitting diodes to display their respective emission profiles. The software displays the prominent peaks in RFU and automatically selects the appropriate LED source yielding the highest fluorescent signal. Source check is used to verify that respective LEDs are operational. The new software version offers enhanced user preferences as well.

**Porvair Sciences Ltd.** introduces **96- and 384-well microplates** that combine the optical properties of glass with the versatility of a microplate. These microplates are suitable for fluorescence assays, luminescence detection, scintillation

counting and high-resolution microscopy using confocal imaging. Users need not perform surface modifications as these microplates are available with tissue culture treatments to optimize cell growth. The optical clarity of the plate bottom easily allows exact positioning in microscopy applications. Based on standard microplate format and precision manufactured to be extremely flat (< 100 microns), Porvair glass bottom microplates are compatible with automated liquid handling systems.

**Olympus** introduced the **EXFO X-Cite 120 PC** automated fluorescent light source, a metal-halide illuminator that is fully controllable through Olympus cell imaging software. These light sources are integrated and can switch between different excitation wavelengths. The light attenuator enables rapid fine tuning to the appropriate light intensity combined with a 1 millisecond shutter speed to eliminate off-acquisition photo bleaching of specimens, crucial in time-lapse studies. Xenon or Xenon/Mercury mixed gas arc burners with electronic control provide a highly stable light source with minimal flickering.

**PBL InterferonSource** introduces a new range of **fluorescence-conjugated antibodies** for use with immunofluorescence microscopy and flow cytometry, including FITC-conjugated antibodies to human and mouse-interferons, alpha and beta. With these reagents, researchers can rapidly identify and sort interferon-alpha and interferon-beta expressing cells in mixed cell populations.

A new **coverslip holder** from **Starna** can be easily and reproducibly positioned in a fluorescence cuvette in a defined 45° orientation to the excitation beam. The coverslip is mounted so that it is located centrally in the optical beam, typically at

15 mm from the base of the cuvette, which provides a space below the coverslip for a small stir bar to mix cell contents. The holder is manufactured in inert black polyethylene terephthalate, and designed to allow introduction of solutions using a syringe injection port or media exchange for perfusion experiments.

**Omega Optical** recently introduced fifteen new **filter sets** for the growing library of fluorescent proteins and applications. Fluorescent proteins (FP) used in live cell imaging applications are typically light starved and require optimized filter sets to deliver high signal-to-noise. All of Omega's FP filter sets are manufactured using proprietary ALPHA technology, which produces extremely steep slopes and accurate band placement for maximizing excitation and emission energy and minimizing background.

#### Companies mentioned in this Product Focus:

Eastman Kodak Company - [www.kodak.com/go/molecular](http://www.kodak.com/go/molecular)  
Fujifilm - [www.fujifilmlifescienceusa.com](http://www.fujifilmlifescienceusa.com)  
Hirox Company - [www.hirox-usa.com](http://www.hirox-usa.com)  
HORIBA Jobin Yvon - [www.jobinyvon.co.uk](http://www.jobinyvon.co.uk)  
NanoDrop Technologies - [www.nanodrop.com](http://www.nanodrop.com)  
Nikon Instruments - [www.nikonusa.com](http://www.nikonusa.com)  
Olympus - [www.olympus-usa.com](http://www.olympus-usa.com)  
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Porvair Sciences Ltd - [www.porvair-sciences.com](http://www.porvair-sciences.com)  
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