

## **BIOLUMINESCENCE/FLOURESCENCE**

The IVIS Lumina II from Caliper Life Sciences is easy to use for either fluorescent or bioluminescent imaging in vivo. The system includes a highly sensitive CCD camera (quantum efficiency 85%, Back thinned, back illuminated with 1024x1024 pixels), light-tight imaging chamber and complete automation and analysis capabilities (Living Image® software).

## **ULTRASOUND**

The VisualSonics Vevo® 770 is a high frequency, high spatial resolution ( $\geq 30\mu\text{m}$ ) ultrasound system used for in vivo imaging. It is equipped with four scan heads that can be used for cardiac, embryonic, abdominal, epidermal or bowel imaging in mice; or for peritoneal, cardiac or epidermal imaging in rats. The Vevo®770 is capable of B-mode, M-mode, pulsed wave (PW) Doppler, Tissue Doppler and Power Doppler imaging. In addition to the standard acquisition software, the Vevo®770 is equipped with software for abdominal, cardiac measurements and embryology measurements.

## **AUTORADIOGRAPHY**

The Cyclone® Plus Phosphor Scanner is a high resolution, quantitative digitized phosphor scanner, replacing film autoradiography. It provides quantitative images for commonly used radioisotopes, including <sup>3</sup>H, <sup>125</sup>I, <sup>14</sup>C, <sup>35</sup>S, <sup>33</sup>P, <sup>32</sup>P, <sup>18</sup>F, and <sup>99m</sup>Tc. Images can be analyzed with OptiQuant™.

## **GAMMA COUNTER**

The 2470 Wizard2 Automatic Gamma Counter is equipped with a 51 radionuclide energy window library has the capacity to run 550 samples. The Wizard2 data analyzer can perform numerous computations including: determining concentrations of unknown samples, curve editing, y-axis transformations, and assay recalculation and reevaluation without recounting.

## **X-RAY SOURCE IRRADIATOR**

RS 2000 by Rad Source Technologies, Inc. has a 0.3mm Copper filter irradiating at 160 kV at 25 mA. The RS 2000 is self-contained/shielded. It provides for a dose rate within the cage of 1.2 Gy/min (the same as gamma irradiator) with a dose distribution of 94% across the entire field. Targeted irradiation can be achieved using the spot beam collimator or custom animal shielding.

## **LUNA PIXImus II**

The PIXImus allows automated, accurate and precise measurement of bone and tissue for small animals (e.g. 10-50 g mice or lemmings). PIXImus uses lower x-ray energy than that used for peripheral densitometry in humans in order to achieve contrast in extremely low density bone. With an image area of 80 mm x 65 mm, the PIXImus can image the entire body of most mice.

## **CRYOSTAT**

The Thermo Scientific Microcrom HM 550 is an open-top cryostat that achieves chamber temperature of -35°C, It is equipped with a Stainless steel microtome with cross-roller bearings for horizontal/vertical specimen movements. It provides fine section thickness from 1 to 100µm and trim section thickness from 5 to 500µm. The cryostat has fast freezing for 12 stations, a horizontal feed of 28mm, a vertical stroke of 60mm, and a motorized sectioning from 0 to 250mm/sec.

## **INTRAVITAL IMAGING**

The Nikon intravital microscope is capable of bright field and fluorescent in vivo imaging. The system can be used to image microvascular networks and tumor growth via cranial or dorsal windows. The main components of the intravital system include an industrial-scale microscope (MM-400), two CCD cameras (Evolve™ and Coolsnap™), an emission filter wheel, shutter and Metamorph® software. The system has been optimized to image the fluorescence spectrums of FITC, eosin (Rhodamine 6G), cyanine 3, Texas red and indocyanine green.

## **PATHOLOGICAL IMAGING**

A Leica microscope capable of both bright field and fluorescence (UV, FITC/GFP and TRITC/ TEXAS RED) imaging is equipped with a motorized XY stage, monochrome CCD camera, objectives from 1.25X to 40X and variable illumination. The system is capable of making accurate high-resolution image composites (image stitching). Image-Pro® Advanced Microscopy Suite 6.3 software, which has the additional capabilities of digital de-convolution, 3D reconstruction and surface topography, is also available.