

PRISM™ IN VIVO IMAGING SYSTEM



- Laser Based 3D Optical Imaging -
- Photon Counting -
- Bioluminescence & Fluorescence -

TECHNICAL SPECIFICATIONS

PRISM™ In Vivo Imaging System

- Image acquisitions of 5 images per second
- 5 anesthesia masks to allow for simultaneous imaging of five mice
- 26 x 26 cm FOV for five mouse imaging
- Prescan that automatically sets EM gain from 1 to 5000 during acquisition
- FOV on
- Lens system with numerical aperture down to f/0.95 for optimal light collection
- Programmable imaging sequences for bioluminescence, fluorescence or both combined
- Co-registration of optical image (fluorescence or bioluminescence) with reflectance image

Epi-Illumination Fluorescence Module

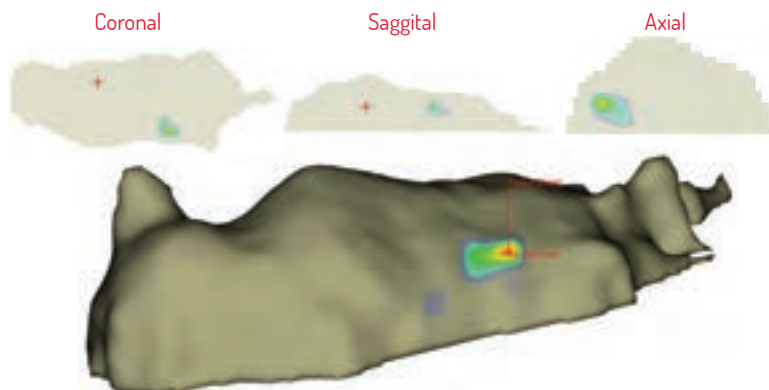
- Filter wheel with 4 excitation filters
- Dual illumination with collimating optics
- Broadband Halogen Fiber Optic Illuminator

Andor™ iXon Ultra 888 EMCCD Camera

- Single photon detection probability: > 91% at 10MHz (EM gain = 5000)
- Read noise: EM < 0.1 e⁻ @ 20 MHz, Conv 3 e⁻ @ 100 kHz
- Quantum efficiency: > 90% at 600 nm
- Dark current: 0.005 e⁻/pixel/s
- Spectral range: 250-1100 nm
- Pixel area: 13 μm × 13 μm
- Max frame rate: 63 fps
- Cooling: -85 °C

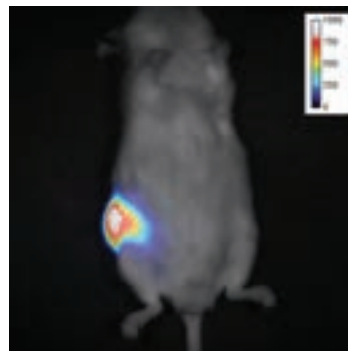
Trans-Illumination Fluorescence Module for 2D and 3D Fluorescent Imaging

- Galvanometer controlled lasers (660 nm and 780 nm) for raster scanning
- Absorbance pre-scan for acquisition optical properties for 3D imaging
- Pre-scan set of EM gain, laser power for each point
- *additional laser wavelengths available

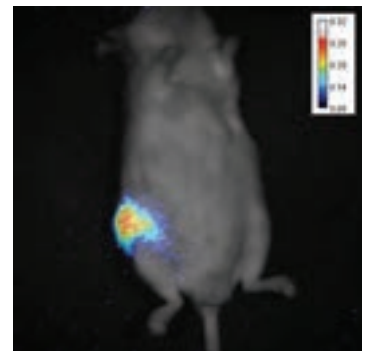


Deep tissue laser based 3D trans-fluorescent image of Cy 5.5 dye injected in flank at 14.35 mm from surface of mouse. The image was obtained using PRISM's rapid trans-illumination and profilometer for the 3D volume.

Red light from Luc+ bioluminescent tumor (641 ± 37 nm BP filter)



NIR light from Luc+ bioluminescent tumor (832 ± 18 nm BP filter)



The emission spectrum of luciferase (left image) indicates that we should not expect to see NIR photon emissions. PRISM Photon counting system was able to **detect an average of 5 photons per pixel** in this region due to its unsurpassed sensitivity.