

ediLumine

Vision without Sacrifice

PRISM™ SWIR In Vivo Imaging System

MediLumine's PRISM™ SWIR In Vivo Imaging System opens new possibilities in molecular imaging by resolving biomarkers deep in living tissue. By imaging in the shortwave infrared, where tissue scatters light far less and emits far less autofluorescence than in the visible or near infrared, PRISM SWIR delivers deeper penetration, a lower background, and higher contrast at depth. The result is clean signal from targets that are difficult or impossible to resolve with conventional visible and NIR imaging.

The system captures the NIR-II and SWIR emission of a wide range of probes. This includes the long wavelength emission tail of established NIR dyes such as Cy5, Cy7.5, and IRDye800CW, as well as dedicated SWIR emitters, so researchers can bring their existing labels into the SWIR window or adopt purpose built SWIR agents.

Excitation is fully modular. The system accepts up to four external laser illumination modules across the NIR and SWIR range, for example 670, 785, 890, 980, and 1076 nm, so the excitation set can be matched to the probes in use and expanded as a program grows.

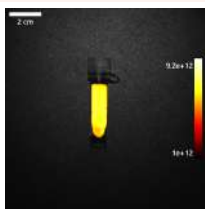
Auto laser and auto exposure acquisition modes tune each capture for optimal depth and contrast without manual iteration.

From real time biomarker tracking to excitation multiplexed imaging, PRISM SWIR gives preclinical researchers a powerful and straightforward path to the sensitivity and depth of shortwave infrared imaging.

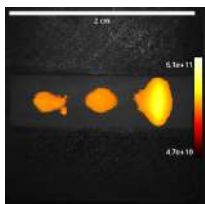


In Vivo Imaging of Cy5-LPS

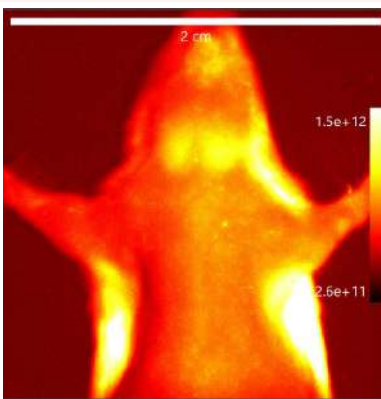
VT-1010



Vial with Cy5 Hydrzide; 670 nm Ex, 1000 nm LP EM

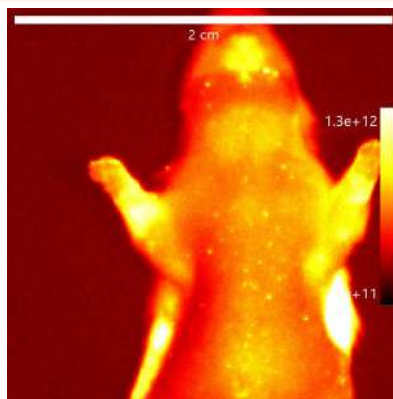


Vial with Cy5 Hydrzide; 780 nm Ex, 1000 nm LP EM in MediLumine's Biomimetic Phantom



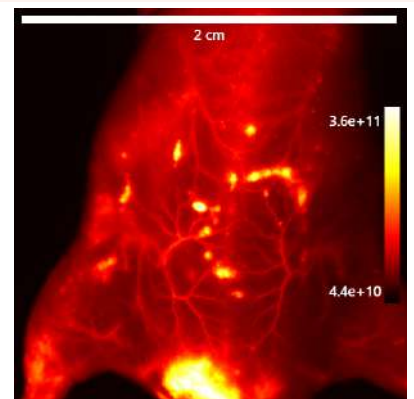
Left: Autofluorescence control, 2 hours after IP Saline injection

Autofluorescence is confined to the salivary glands and jaw region, likely due to blood-related background, with no detectable signal in paws or digits.



Right: Cy5-LPS injection, 2 hours after IP injection of Cy5-LPS

Strong signal is detected in the highly perfused salivary glands and jaw region, as well as in the arms, and digits demonstrating the biodistribution of the labeled Cy 5 LPS.



IV injection of pegylated AIE nanoparticle, excited using the PRISM™ SWIR 785 nm laser. In addition to detailed vascular structures, signal is evident in superficial skin lesions and clearance through the bladder, highlighting both biodistribution and excretion pathways.



Highly Customizable

The exceptional sensitivity of the PRISM™ SWIR imaging platform, combined with reduced light scattering and deeper tissue penetration in the shortwave infrared range, enables researchers to resolve fine biodistribution features deep within living tissue. This gives researchers a powerful, real-time tool for studying biomarkers, vascular biology, tissue pathology, and clearance pathways with greater clarity and depth than conventional visible/NIR imaging.

Unparalleled modularity and resolution (best cost effectiveness on the market)



Up to four external illumination modules with up to 30 watts of illumination power in each module



Multimodal animal carrier for one to three mice, compatible with commercially available in vivo imaging systems

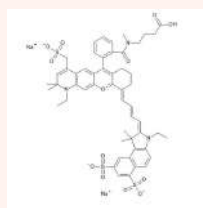
MediLumine's SWIR Contrast Agent Line



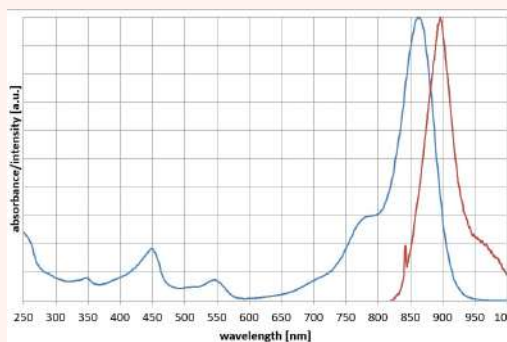
Lyophilized ICG Nanoparticles



Vascular Tracker 1010 AIE Organic Nanoparticles



DY 865 for Targeted Imaging of Biomarkers



DY-865 absorption max is at 865 nm and emission max is 896 nm with long tail of emissions in SWIR. The dye is water soluble and available with carboxylic acid, NHS-ester, amino-derivative, maleimide, and azide modifications.

Specifications

- PYRAMID acquisition software with real time visualization
- Variable FOV via motorized zoom : 2.5 cm to 10 cm
- Video rate imaging at 60 frames per second
- Temperature control between 20 to 40 °C to keep animal within physiological conditions
- Integrated filter holders for 1" round filters on excitation or illumination LED with user defined wavelength for reflectance imaging
- Linear polarizer for reflectance imaging of lymph nodes and other structures
- Compatibility with other in vivo imaging systems via multimodal animal carrier
- Anesthesia masks for imaging up to three mice
- Co-registration of optical image fluorescence image with LED light reflectance image
- Table top size (24 by 24 by 36 inches)

Illumination specs

- Up to four illumination modules with the following 670 nm, 760 nm, 785 nm, 808 nm, 890 nm, 915 nm, 940 nm, 975 nm, 1064 nm, and 1470 nm
- Up to 30 Watt illumination power
- Interleaving illuminations at different wavelengths with one second intervals between illuminations

Camera specs

- 640*512 pixels
- Pixel pitch: 15µm
- Quantum efficiency > 80%
- Detection from 900 to 1700 nm
- 93 dB true 16 bits
- Exposure time from 10µs to 112 sec
- Dark current value of 365 e-/p/s at -40°C