MediLumine Vision without Sacrifice

PRISM™ In Vivo SWIR Imaging System

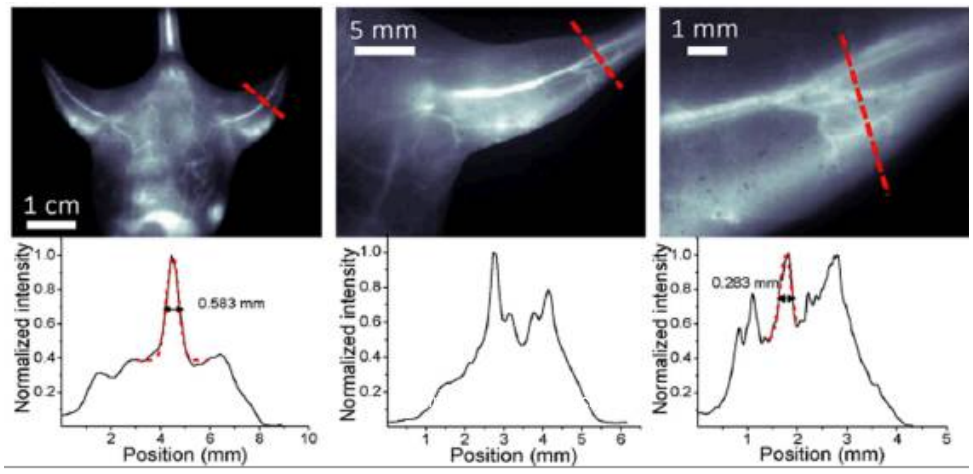
MediLumine's PRISM™ in vivo SWIR imaging system enables real-time, multicolor imaging at video rate (60 frames per second) across the shortwave infrared region. The system supports real-time interleaved illuminations in both NIR and SWIR wavelengths, allowing for four-color imaging with high spatial and temporal resolution.

The external illumination module features up to four user-defined wavelengths, and the modules can be easily swapped if users wish to add more illumination wavelengths to their imaging setup.

The system offers auto-laser and auto-exposure modes that automatically adjust laser power and exposure for optimal depth penetration in imaging experiments.

It is designed to support excitation multiplexing and single-channel detection of SWIR emissions from dyes excited across the NIR/SWIR spectrum, such as 808 nm, 890 nm, 980 nm, and 1076 nm.

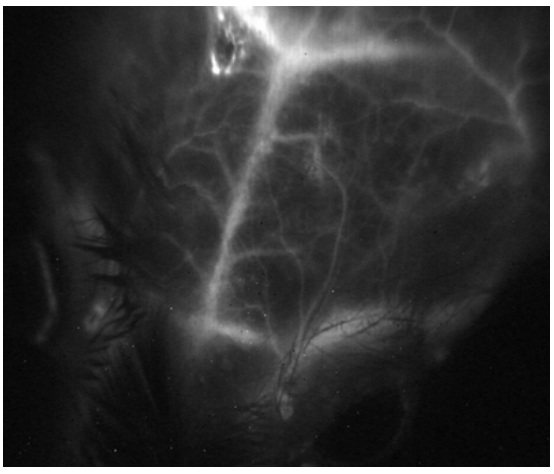
High Resolution with Variable FOV



Three available fields of view on the system (10 cm, 24 mm and 4.8 mm)

Reference: Hong G, Lee JC, Robinson JT, Raaz U, Xie L, Huang NF, Cooke JP, Dai H. Multifunctional in vivo vascular imaging using near-infrared II fluorescence. Nat Med. 2012 Dec;18(12):1841-6. doi: 10.1038/nm.2995. Epub 2012 Nov 18. PMID: 23160236; PMCID: PMC3595196.

Through the Skin and Skull



ICG imaging in SWIR wavelengths across the skin and skull using technology from the PRISM in vivo SWIR Imaging system

Highly Customizable

The PRISM in vivo imaging system is highly customizable, allowing users to define their wavelengths of interest while taking advantage of the high tissue penetration offered by optical SWIR imaging.

The system can also be integrated with other in vivo imaging equipment in your lab using a unique multimodal animal carrier, enabling experiments with up to three mice.

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

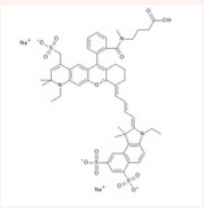
Up to four external illumination modules with up to 30 watts of illumination power in each module

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

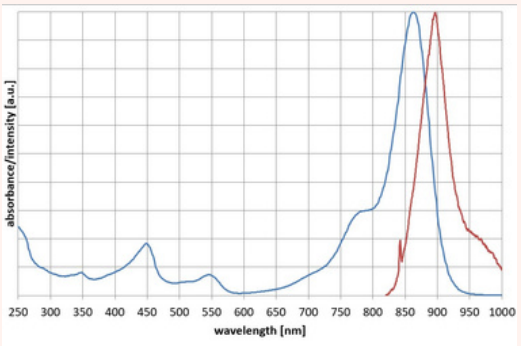
MediLumine's SWIR Contrast Agent Line

ICG micelles with long circulation in blood pool

Lead Sulfide or Indium Arsenide Quantum dots



DY 865



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 field of view via motorized zoom : 10 cm, and 2 .5 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
- Compatability 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 single illumination modules
- Available wavelengths: 670 nm, 760 nm, 785 nm, 808 nm, 890 nm, 915 nm, 940 nm, 975 nm, 1064 nm, 1470 nm, 1940 nm
- Up to 30 Watt illumination power
- Integrated filter holders for 1" round filters on excitation or illumination
- Interleaving illumination at up to four different wavelengths

Camera specs

- 640*512 pixels
- Pixel pitch: 15µm
- Quantum efficiency > 80% (peak)
- Integrated filter holder for 1" round emission filters at 1000 nm, 1300 nm and 1500 nm
- Detection from 900 to 1700 nm
- Exposure time from 10µs to 112 sec
- Dark current value <1500 e-/pixels/s @-20°C

5795 Av. De Gaspé, Suite #228 Montreal, Canada, H2S 2X3, info@medilumine.com, MediLumine Inc.