

Precise  
Versatile  
Modular



MediLumine is proud to partner with **Labeo Technologies Inc.** for distribution and applications development of the multimodal **LightTrack OIS200** imaging system.

# Specifications

## Camera and Acquisition Software

- sCMOS camera (1.5 e- read noise)
- Frame rate up to 480Hz, exposure time from 0.1ms to 100 ms

## Intrinsic Optical Imaging (IOI) Module

- Sequential green (525nm), Amber (590nm) and Red (625nm) LED based illumination with spot size from 3 to 30mm.

## Fluorescence Imaging

- Options cover most of the GECI (GCaMP, jrGECO, etc.), GEVI and injected fluorophore (ICG, OGB-1, etc.), NIR fluorophores. 3 to 30 mm illumination field.

## Speckle Imaging

- 785 nm laser diode with an adjustable spot size.

## Illumination for Optogenetic Stimulation

- 450nm, 589nm and 660nm laser with high speed compact digital laser controller.
- Other wavelengths available upon request. Spot size down to 50µm with up to 1W/mm<sup>2</sup> power output.



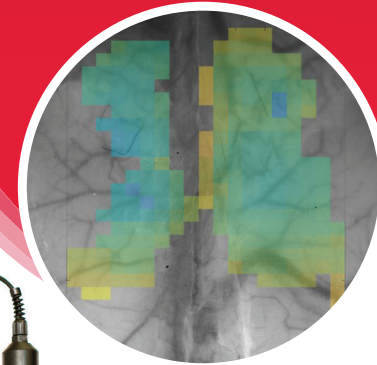
## MediLumine Inc.

5795 av. de Gaspé, Suite #228  
Montréal, Québec, Canada, H2S 2X3  
Tel: 1.514.929.9744 | Toll Free: 1.844.360.1574  
Email: [info@medilumine.com](mailto:info@medilumine.com)

### Image Credits

Front Page: Data generated by LabeoTech Inc.  
Calcium Imaging Section: Laliberté G, Othman R, Vaucher E. Mesoscopic Mapping of Stimulus-Selective Response Plasticity in the Visual Pathways Modulated by the Cholinergic System. *Front Neural Circuits*. 2020 Jul 3;14:38. doi: 10.3389/fn-cir.2020.00038.  
Optogenetic Section: Zhang SY, Jeffers MS, Lagace DC, Kirton A, Silasi G. Developmental and interventional plasticity of motor maps after perinatal stroke. *J Neurosci*. 2021 Jun 1;41(28):6157-72. doi: 10.1523/JNEUROSCI.  
Vascular Imaging Section: Data generated by LabeoTech Inc.

 ediLumine



# LightTrack OIS200

## Modular Optical Imaging System

Intrinsic Optical Imaging - Fluorescence Imaging - Speckle Imaging

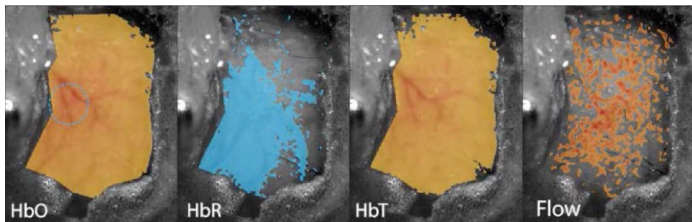


Scan here  
for more  
information

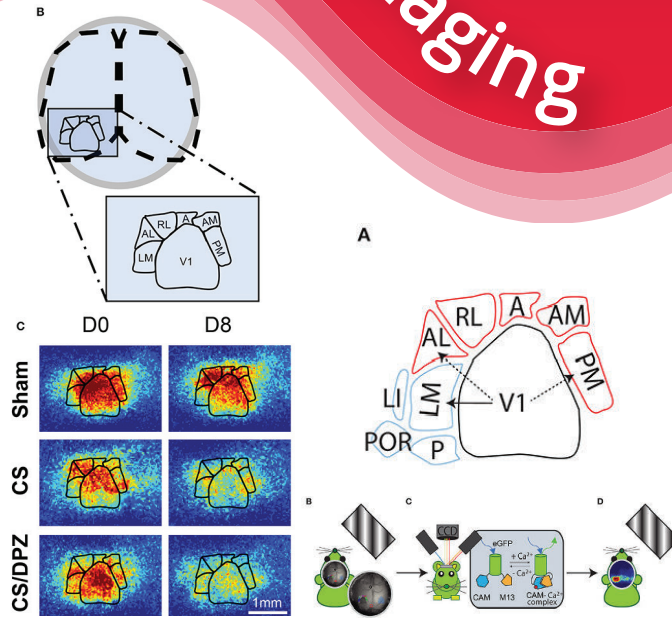


# Vascular Imaging

For **vascular imaging**, the LightTrack OiS200 can obtain **vascular anatomy images** in fluorescence mode (eg. image above with Fmoy 1.3 nanoparticles) or real time intrinsic optical images of **hemoglobin (oxygenated, reduced and total)** as well as **blood flow** (Laser speckle imaging) following whisker stimulation (image below from MediLumine's youtube channel).

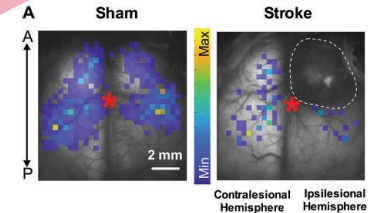


# Calcium Imaging



For **calcium imaging**, the LightTrack OiS200 system uses **LED based illumination to obtain both calcium and intrinsic signals**. These signals are then used to obtain the **calcium signal ( $\Delta F/F$ , %)** of each pixel. In the example image above, calcium imaging was performed with Light-Track OiS200 in head-fixed awake adult mice expressing GCaMP6s. The imaging was performed before and after conditioning to **understand long term plastic changes on cortical maps**.

# In Vivo Optogenetics



**In vivo optogenetics** can be performed with **many different options**, for example the using the **laser stimulation matrix** available with the **1D optogenetic add-on** to generate **bihemispheric motor maps**. In this image, Thy1-ChR2-YFP mice having received a photothrombotic stroke at postnatal day 7 underwent longitudinal **optogenetic motor map-ping** both before and after 3 weeks of skilled forelimb training.

