

Halo 375™

Revolutionize your ophthalmic research with the world's first visible-light optical coherence tomography and multicolor confocal scanning laser ophthalmoscope for small animals.

The Halo 375 research system is a free-standing visible-light OCT (vis-OCT) and optional multicolor confocal scanning laser ophthalmoscopy (cSLO) platform for eye imaging in small animals, such as mice, rats, and tree shrews. The optical

design provides for the addition of multiple modules for specific applications, including single-color cSLO or two-color cSLO, and multiple choices of excitation lasers.



Figure 1: Rendering of the Halo 375 imaging head



Figure 2: Rendering of the Halo 375 complete system on a mobile cart, where the imaging head is mounted vertically. Cart height: 110 cm; width: 65 cm; depth: 65 cm.

The optional cSLO is compatible with three primary fluorescent colors with excitation performance of 488 nm, 520

nm, and 594 nm. These channels are accessible with commonly used fluorescence markers, including but not limited to green fluorescence protein (GFP), yellow fluorescence protein (YFP), and red fluorescence protein (RFP). This flexible option to use both vis-OCT and fluorescence channels enables innovative multimodal imaging studies with genetically modified animals or differential staining to provide a rich snapshot of the eye for various diseases, including glaucoma and diabetic retinopathy, as well as therapeutic screening studies.

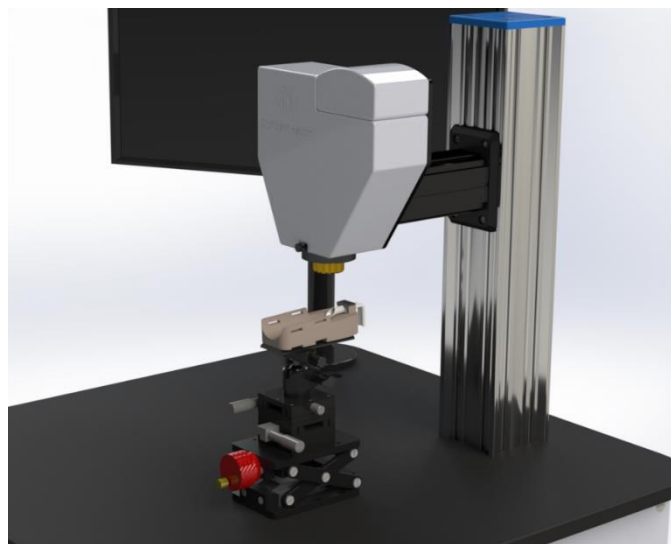


Figure 3: Close view of the mouse holder and a vertically mounted Halo 375 system.

Halo 375 key imaging capabilities for vis-OCT

- Ultrahigh resolution anatomical imaging
- Inner/Outer retinal sub-layers delineation
- Fibergraphy (OCTF) for retinal ganglion cell axon analysis
- Inner retinal oximetry
- Angiography (OCT-A)

Halo 375 specifications	
Key performance for vis-OCT	
Axial resolution	1.3 μm in tissue
Maximum field-of-view (FOV)	54 degrees
Lateral resolution (FWHM)	4 μm in the central FOV and 8 μm in the peripheral FOV
Depth of imaging	1.5 mm in tissue
Maximum A-line rate	80 kHz (125 kHz or 250 kHz for an additional cost)
Spectral range	510 nm - 610 nm
Angiogram mode	2-5 repeats
Speckle reduction mode	Up to 10 volume repeats
Mobile cart dimension	110 cm height; 65 cm width; 65 cm depth
Key performance for cSLO	
Image scanning rate	Same as the vis-OCT A-line rate
APD sensitivity	Minimal detectable fluorescence power - 0.44 nW
Data acquisition rate	A/I clock rate - 300 kHz
Laser coupling connector	Single-mode fiber FC/PC connector and DIAMOND connector

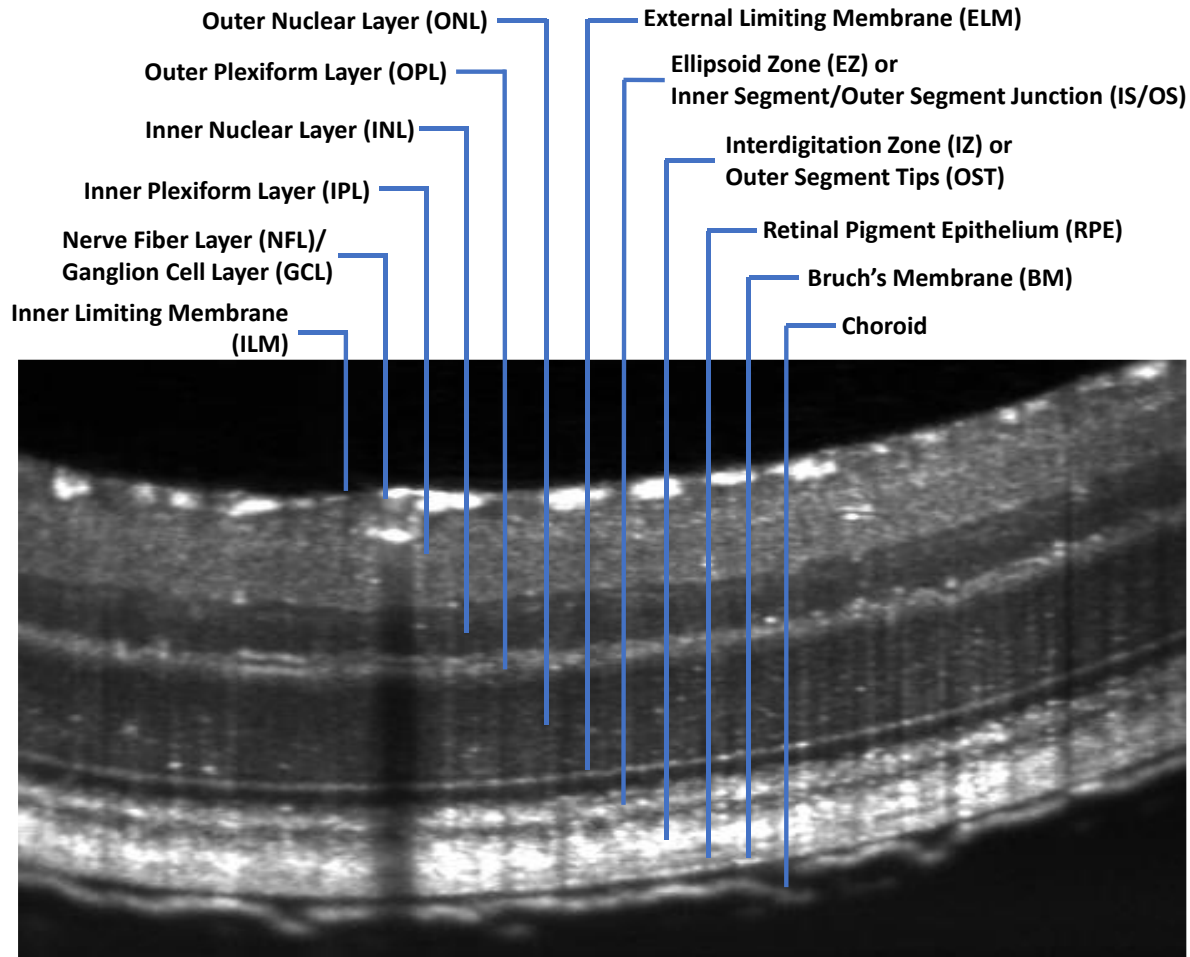


Figure 4: Vis-OCT image of a mouse retina. Inset reveals a clear resolution of key anatomical features, including Bruch's membrane retinal pigment epithelium. Visible-light wavelengths enable superior contrast and axial resolution (up to 1.3 μm), allowing researchers to visualize outer retinal layers that are difficult to visualize with NIR OCT.

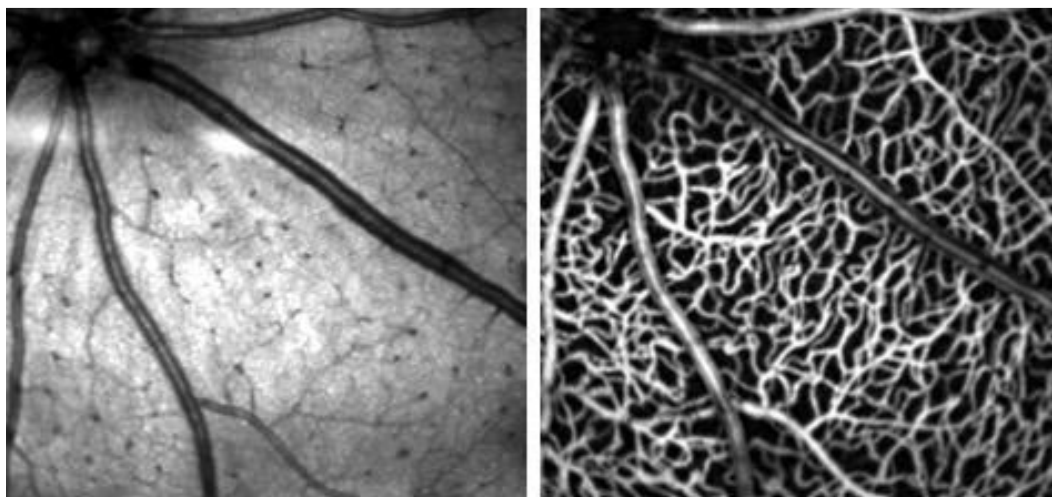


Figure 4: An en-face vis-OCT (left panel) and vis-OCTA (right panel), providing the finest detail of retinal microvasculature in mouse retina.

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Ordering Information

Halo 375 Visible Light OCT Imaging System for Small Animal Research	OH.P.16.SAR
Halo 375 Multicolor cSLO Module	OH.P.24.SAR
Halo 375 Blue Illumination and Detection Module	OH.P.25.SAR
Halo 375 Red Illumination and Detection Module	OH.P.26.SAR
Halo 375 Green Illumination and Detection Module	OH.P.27.SAR