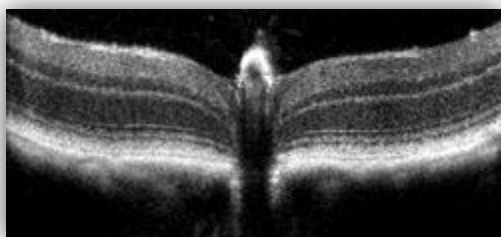


Envisu SDOCT Hardware (R2210, R2310, R4300, R4310)

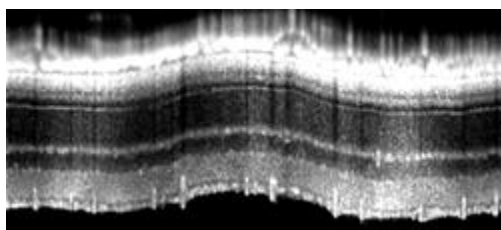


- 23" LCD display
- Color fundus camera inside scan head
- Large work surface
- Anterior, Posterior Lenses
- Cleanable keyboard
- 2 meter long tether
- Rugged, mobile cart

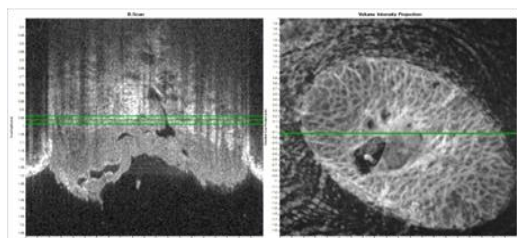
Superior, High Resolution Images



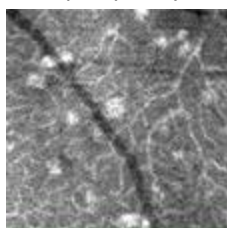
Mouse Retina



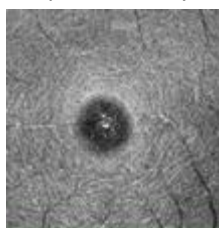
Mouse Ganglion Cell Layer



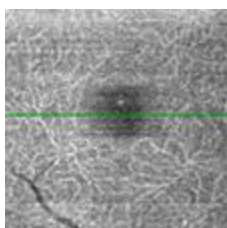
Lamina Cribosa Image with Envisu S4300  
Deep capillary bed, outer plexiform layers



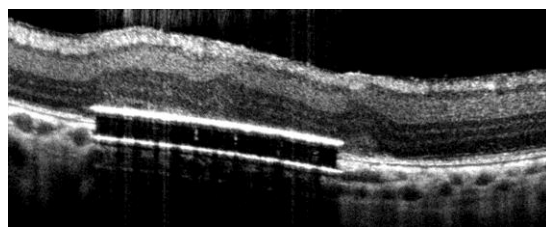
Mouse



Primate



Human



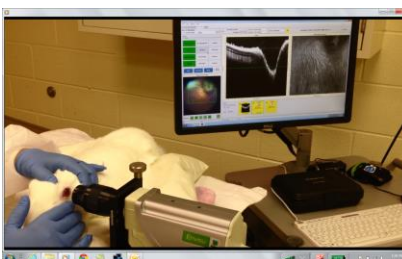
Retinal Prosthesis Implant, Mini-pig CL-02-41 rev. C.

Bioptigen SDOCT Advantage

- ...Extremely high resolution, brilliant OCT images*
- ...Highest density, volumetric image capture*
- ...Real-time, WYSIWYG imaging*
- ...Automated volumetric mouse segmentation*
- ...Earlier detection of pathology*

EnFace™ Image Guided OCT

- ...Faster alignments*
- ...Quicker screening*
- ...Targeted explorations*
- ...Better visualizations*



Fast alignment of  
OCT on rabbit retina  
Using Envisu R2310  
with EnFace™ Color  
Fundus technology

## Bioptigen Envisu™ SDOCT Product Line for Preclinical Research

*Bioptigen R-Class Systems are not Cleared for Use with Humans*

<b>Product</b>	Envisu™ R2210		Envisu™ R2310		Envisu™ R4300		Envisu™ R4310	
<b>Animal Type</b>	Small Animal		Large Animal		Large Animal & Small Animal		Large Animal & Small Animal	
<b>Imaging Segment (Optimized)</b>	Posterior		Posterior Deep Penetration		Anterior Extended Imaging Window		Anterior Extended Imaging Window	
<b>Imaging Segment (Additional)</b>	Anterior		Anterior		Posterior		Posterior	
<b>Applications</b>	Fine imaging of ocular tissues, e.g., mouse & zebrafish anterior and posterior chambers, rodent RPE, BM, Schlemm's Canal; corneal wound healing.		Fine imaging of ocular tissues, 50% greater image depth than 2210; appropriate for rodent, rabbit, pig, monkey; retinal and anterior substructures		Most versatile OCT, balanced for greatest depth; mouse biometry & phenotyping; rodent models of myopia, ex vivo tissue imaging		Most versatile OCT, balanced for greatest depth; mouse biometry & phenotyping; rodent models of myopia, ex vivo tissue imaging	
<b>Specifications</b>								
High Density, Full 3D Volume Imaging	Yes		Yes		Yes		Yes	
EnFace™ Image Guided OCT	Yes		Yes		Yes		Yes	
- Color Fundus Video	Yes		Yes		Yes		Yes	
- Near IR Fundus Video	Yes		Yes		Yes		Yes	
OCT Source Laser	VHR		UHR		VHR		VHR	
- Source Type	SLD		SLDs		SLD		SLD	
OCT max output power	750µW		750µW		750µW		750µW	
Axial Resolution and Imaging Depth	VHR		UHR		VHR		VHR	
- Axial optical resolution in tissue	2.4 µm		1.9 µm		2.4 µm		2.4 µm	
- Axial digital resolution in tissue	1.6 µm		1.6 µm		2.3 µm		2.6 µm	
- Imaging depth in tissue	1.6 mm		1.6 mm		2.5 mm		5.4 mm	
- Number of pixels	1024		1024		1024		2048	
Scanning Speed, Customization	32,000		32,000		20,000		20,000	
- Acquisition Rate (lines per second)	32,000		32,000		20,000		20,000	
- High density & best EnFace imaging	1000 x 1000 x 1		1000 x 1000 x 1		800 x 800 x 1		800 x 800 x 1	
- High Contrast imaging	1000 x 100 x 10		1000 x 100 x 10		1000 x 80 x 8		1000 x 80 x 8	
- Optimized scanning for segmentation	480 x 480 x 4		480 x 480 x 4		340 x 340 x 4		340 x 340 x 4	
- Fully Customizable imaging	Yes		Yes		Yes		Yes	
- Image Guided Dynamic Scan Control	Yes		Yes		Yes		Yes	
- Enhanced Depth Imaging Mode	Yes		Yes		Yes		Yes	

## Bioptigen Envisu™ SDOCT Product Line for Preclinical Research

*Bioptigen R-Class Systems are not Cleared for Use with Humans*

Product	Envisu™ R2210	Envisu™ R2310	Envisu™ R4300	Envisu™ R4310
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### Specifications

Lateral Resolution				
- General Retina Lens	-	-	-	-
- Mouse Retina Lens	1.7 µm	1.7 µm	2 µm	1.7 µm
- Rat Retina Lens	2.5 µm	2.5 µm	3 µm	2.5 µm
- Rabbit Lens	9.0 µm	9.0 µm	6 µm	9.0 µm
- High NA Telecentric Lens	8.5 µm	8.5 µm	8 µm	8.5 µm
- Deep Focus Telecentric Lens	-	-	12 µm	-
- Wide Field of View Lens	23 µm	23 µm	21 µm	23 µm
Field of View [Working Distance]	FOV [WD]	FOV [WD]	FOV [WD]	FOV [WD]
- General Retina Lens	-	-	-	-
- Mouse Retina Lens	1.7 mm [5 mm]	1.7 mm [5 mm]	2.0 mm [5 mm]	1.7 mm [5 mm]
- Rat Retina Lens	3.5 mm [6 mm]	3.5 mm [6 mm]	3.0 mm [6 mm]	3.5 mm [6 mm]
- Rabbit Lens	70° [11 mm]	70° [11 mm]	70° [11 mm]	70° [11 mm]
- High NA Telecentric Lens	10 mm [49 mm]	10 mm [49 mm]	8 mm [15 mm]	10 mm [49 mm]
- Deep Focus Telecentric Lens	-	-	14 mm [20 mm]	-
- Wide Field of View Lens	20 mm [39 mm]	20 mm [39 mm]	20 mm [17 mm]	20 mm [39 mm]
O/S and System Software				
- Operating System:	64-Bit, Windows 7	64-Bit, Windows 7	64-Bit, Windows 7	64-Bit, Windows 7
- Acquisition Software:	InVivoVue 2.4	InVivoVue 2.4	InVivoVue 2.4	InVivoVue 2.4
- Automated Retinal Segmentation:	Diver 2.4	Diver 2.4	Diver 2.4	Diver 2.4
- <i>Envisu Apps</i> Software	Yes	Yes	Yes	Yes
Data Management Products				
- InVivoVue™ Reader External Data Station	Yes	Yes	Yes	Yes
- <i>Porter</i> Data RAID-2 Storage Drive	0.5 TB	0.5 TB	0.5 TB	0.5 TB
Imaging Alignment Systems (Preclinical)				
- RAS 2 Rodent Alignment System	Yes	Yes	Yes	Yes
- Mouse Kit	Yes	Yes	Yes	Yes
- Rat Kit	Yes	Yes	Yes	Yes
- ZAS Zebrafish Alignment System	Yes	Yes	Yes	Yes
- CAS Compact Alignment System	Yes	Yes	Yes	Yes

**CAUTION--Device for investigational use in laboratory animals or other tests that do not involve human subjects.**

Bioptigen Spectral Domain Ophthalmic Imaging Systems are covered by one or more of the following US Patents: 6,006,128; 6,735,463; 7,719,692; 7,8230,525. Additional patents may apply. Additional patents pending.

## InVivoVue 2.4 OCT Management Software

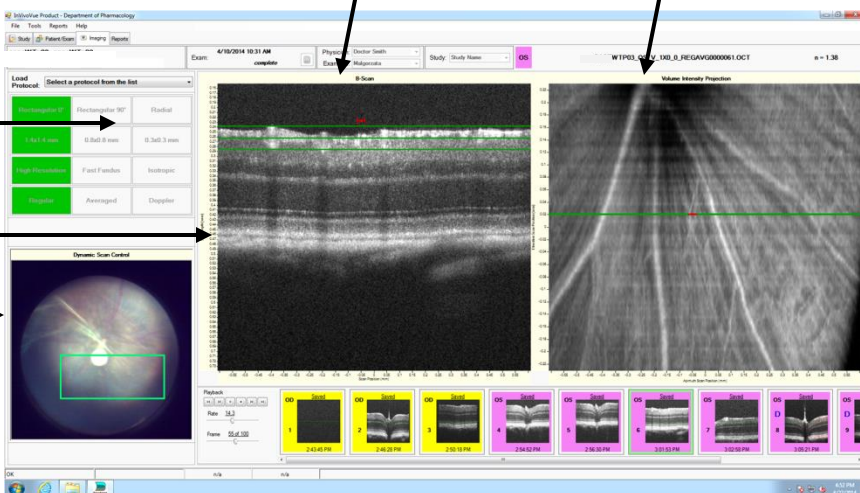
OCT B-scan image

OCT VIP Fundus image

Pre-programmed, and modifiable scan protocols

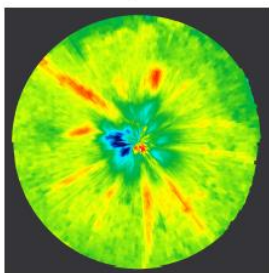
Acquire very high resolution 1000 x 1000 x 1024 data sets

EnFace™ Image Guided OCT with Dynamic Scan Control



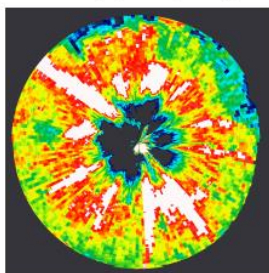
## Diver 2.4 Automated Volumetric Mouse Retinal Thickness Analysis Software

Heat Map



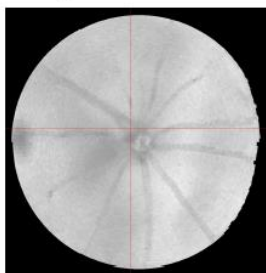
Min =153.04, Max = 614.30 um

Heat Map (AVG ± 1 STD)

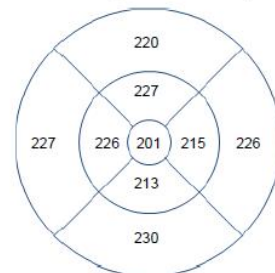


Min =204.09, Max = 240.67 um

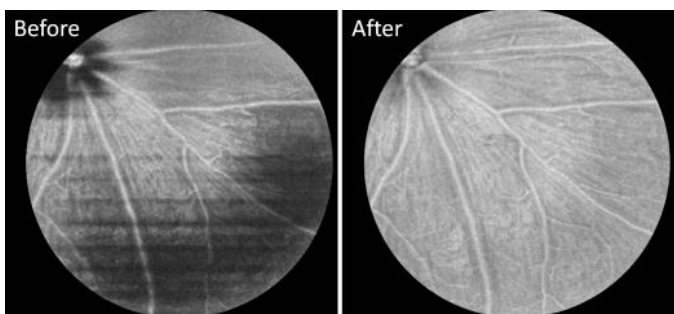
Segmented VIP



ETDRS (100/300/600 um)



## Envisu Application Software: Dynamic Image Flattening



- ✓ Eliminate motion artifacts
- ✓ Perfectly flat enface views across full FOV
- ✓ Single pixel slicing throughout depth
- ✓ Allows visualization of layered features as small as a single capillary bed.

CAUTION--Device for investigational use in laboratory animals or other tests that do not involve human subjects.