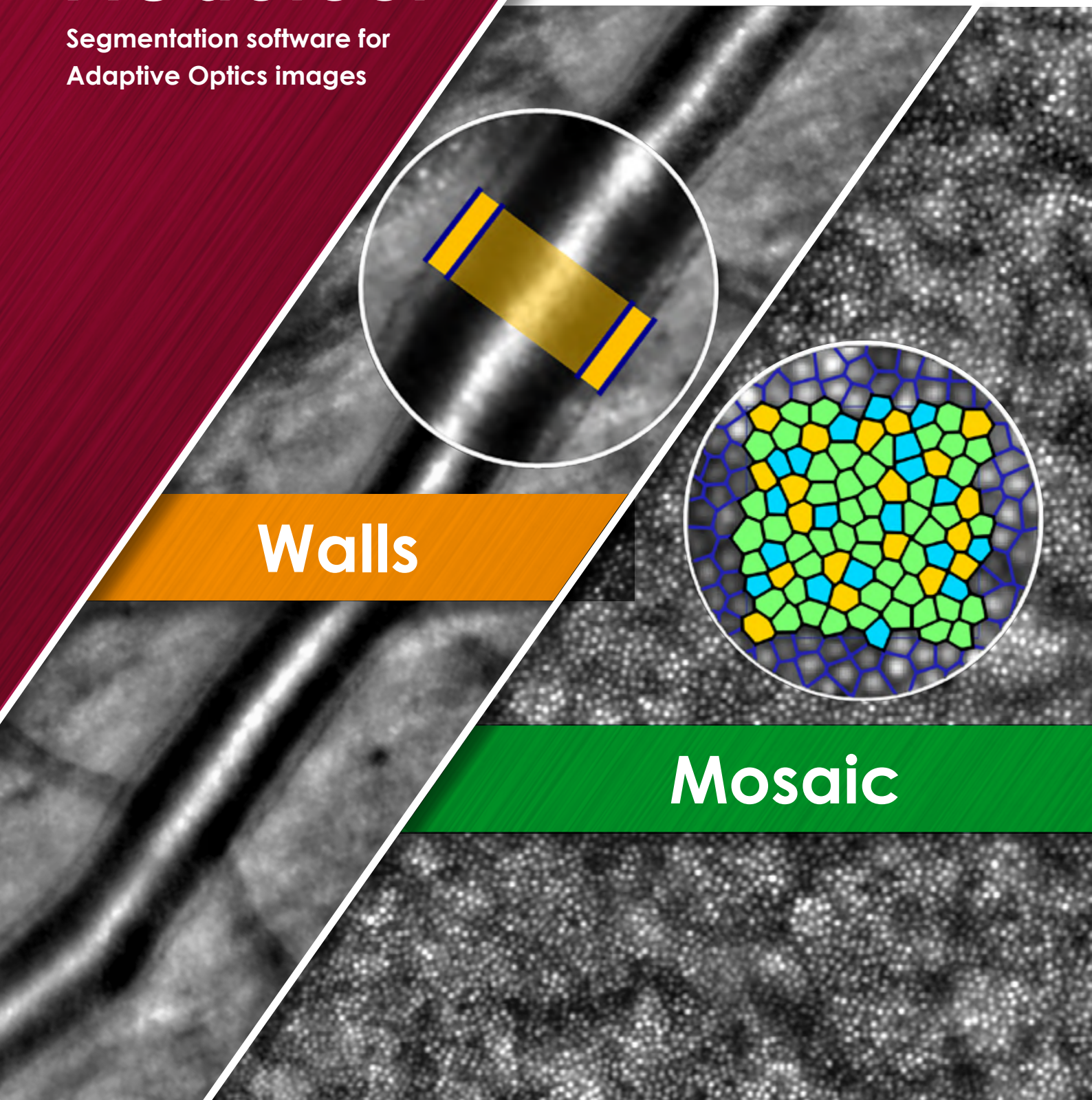
Add investigational value to the rtx1™ AO Retinal Camera

imagine eyes®

AOdetect™

Segmentation software for Adaptive Optics images



AOdetect™

Segmentation application for rtx1™ Adaptive Optics Retinal Images

Adopted by rtx1 users to analyze AO retinal images

AOdetect is an application for supervised segmentation of ultrahigh resolution images acquired with the rtx1 AO retinal camera.

Developed in collaboration with clinicians, it computes local descriptors that help analyze the structure of retinal arterioles and the distribution of parafoveal cone cells. These metrics provide candidate AO biomarkers for clinical investigations.

With AOdetect, you are in complete control as all automated segmentations can be manually corrected in just a few clicks.

- **Quick workflow**
- New **User-friendly interface**
- New **Printable analysis reports**
- New **Multi-ROI & follow-up modes**
- **Cellular & microvascular metrics**
- **Accurate and reliable** [1,2]

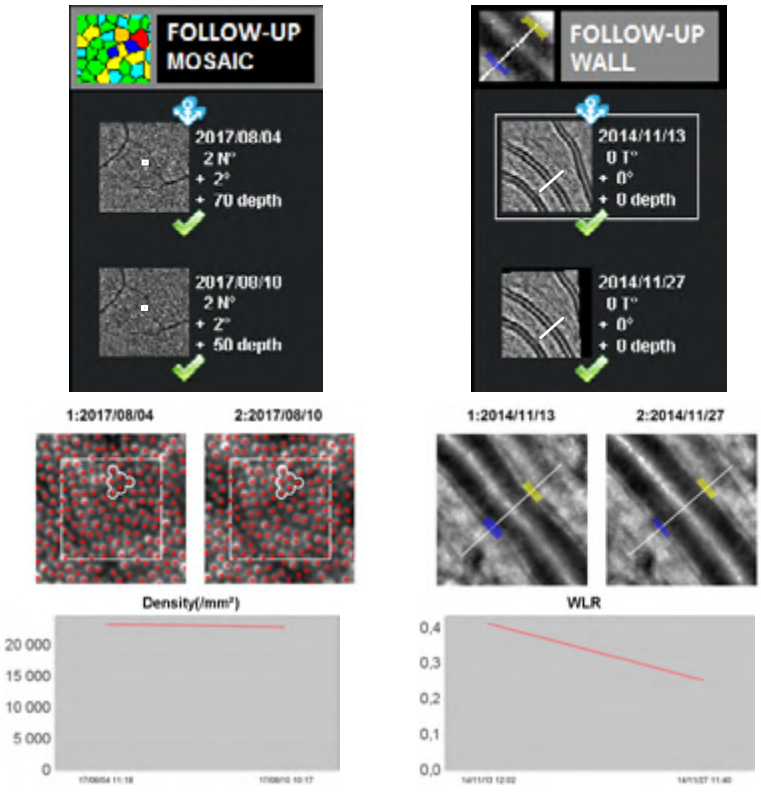
rtx1 + AOdetect : Fast follow-up workflow

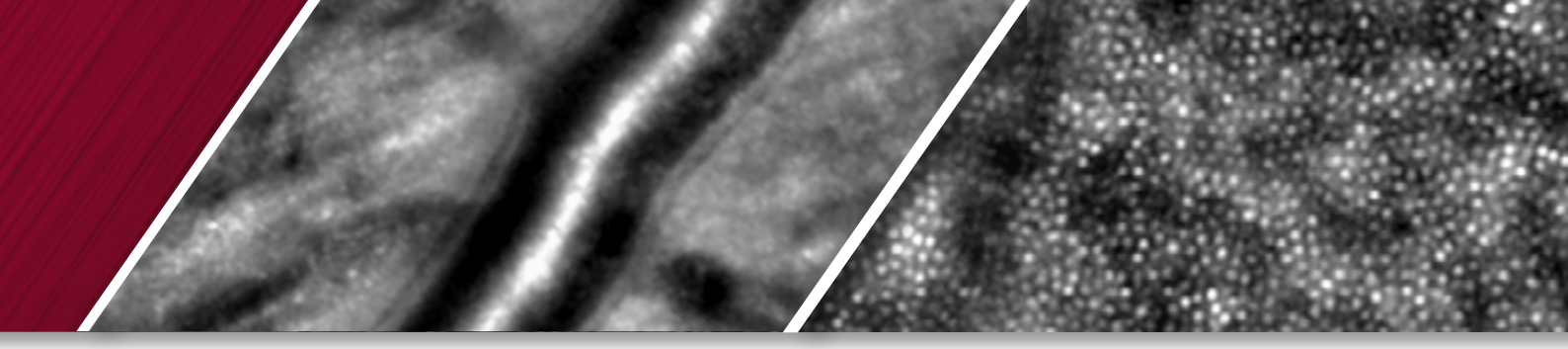
Thanks to its high-precision algorithm, the rtx1 delivers follow-up AO images that are perfectly aligned with the baseline image.

AOdetect enables analyzing the exact same region in baseline and follow-up images, with only a few clicks.

New Your follow-up analysis is automatically updated with each new visit.

This is how you can easily monitor a specific group of cells or chosen vascular section over time.





Wall

For images of small retinal arteries

Automated wall segmentation and thickness computation

Manual correction : click-and-drag to displace the wall borders while monitoring their position in the gradient profile

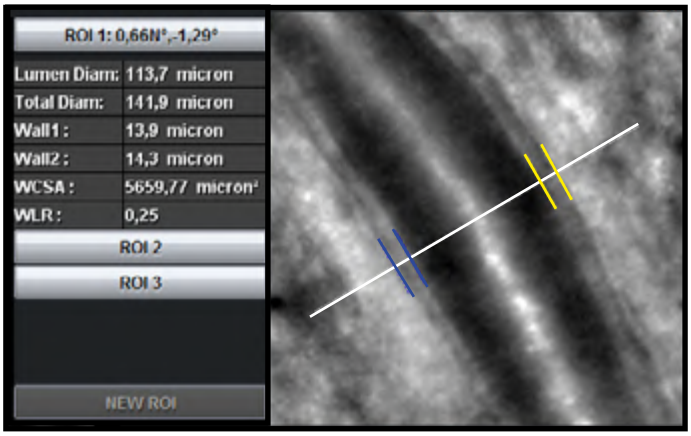
Wall metrics

- Internal and external diameter
- Wall thickness
- Wall Cross Section Area (WSCA)
- Wall to Lumen Ratio (WLR)

Reproducibility

0.7% for internal diameter [1]

3.3% for Wall to Lumen Ratio [1]



Example of analysis results in metric units. Visual units are also available.

Mosaic

For images of parafoveal cone cells

Automated mosaic segmentation and Voronoi analysis

Manual correction : simple clicks to add and remove cells while monitoring the Voronoi segmentation

Mosaic metrics

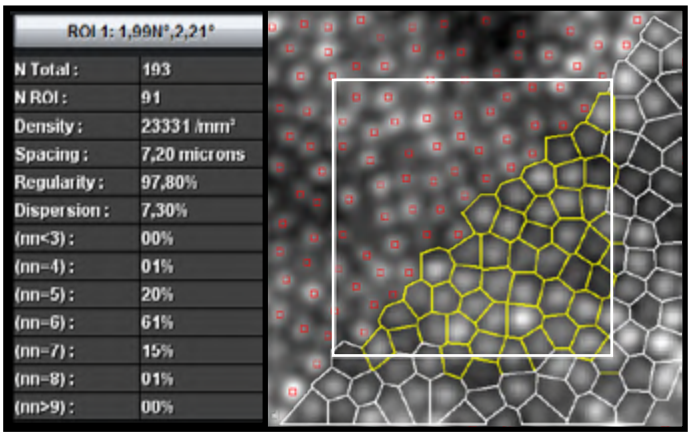
- Cell density
- Inter-cell spacing
- Regularity index
- Dispersion index

Reproducibility

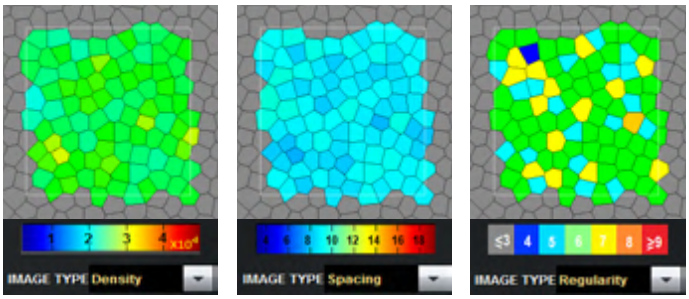
4% for cell density [2]

Color-coded Voronoi diagrams

- Density
- Spacing
- Regularity



Example of analysis results in metric units. Visual units are also available for reduced variability in Voronoi cell density and inter-cell spacing[2].



[1] De Ciuceis et al. Comparison Between Invasive and Noninvasive Techniques of Evaluation of Microvascular Structural Alterations. *J of Hypertens 36;* 5:1154-1163
[2] Legras et al. Distribution of Cone Density, Spacing and Arrangement in Adult Healthy Retinas with Adaptive Optics Flood Illumination. *PlosONE 13,* e0191141

> *The retinal image analysis with rtx1 offers a novel noninvasive measurement of early changes in the vasculature that are not detectable on routine clinical examination.*
>
> Zaleska-Żmijewska et al. *J Diab Research,* 2017

> *In arterial hypertension, WLR is a robust, dimensionless parameter that can be measured on large cohorts of nondilated patients.*
>
> Paques et al., Prog Ret Eye Research, 2018

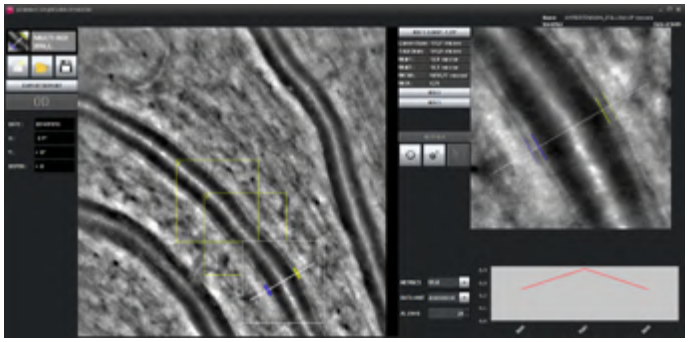
> *The rtx1 retinal image evaluation demonstrated photoreceptors loss in DM1 diabetic patients prior to any clinical changes.*
>
> Cristescu et al. *Rom J Ophthalmol,* 2019

> *AO images showed a decrease in the number of foveal cone densities over 2 years in patients with RP. AO may shorten the period required to predict the RP progression rate.*
>
> Ueda-Consolvo et al. *Graefes Arc Clin Exp Opht*, 2019

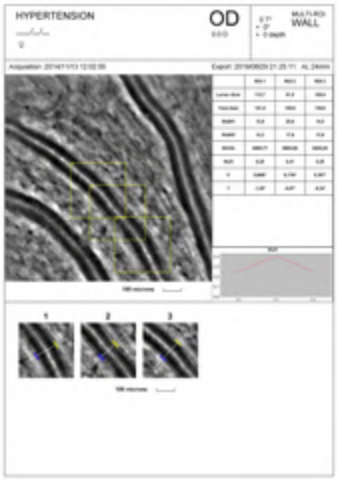
AOdetect interface and reports

New

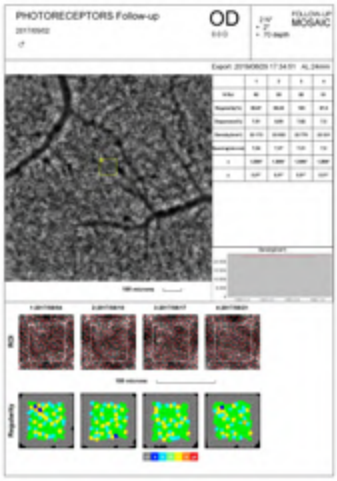
Walls **x** Multi-ROI



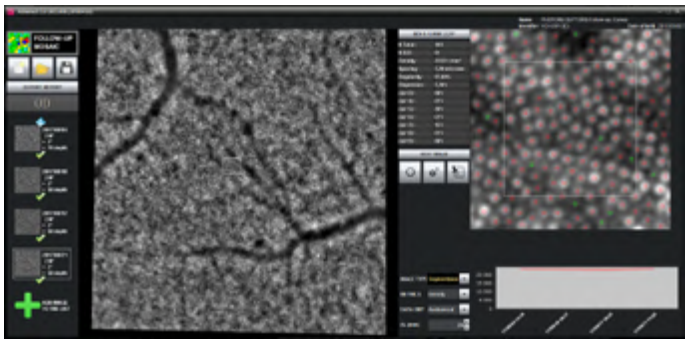
Walls **x** Multi-ROI Report



Mosaic **x** Follow-up Report



Mosaic **x** Follow-up



SPECIFICATIONS

AOdetect Software

Computer requirements	
OS	Windows XP-SP3, 7-SP1, 10
RAM	4 Gbyte or more
CPU	Intel i3 or higher
Export formats	
Analysis results	Text file
Printable reports	JPEG

CE 0459

AOdetect is an option of the certified rtx1 device in the European Union, Japan and Korea. In other territories, **AOdetect** is a separate product for research use only.

For use by trained eyecare professionals only.

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