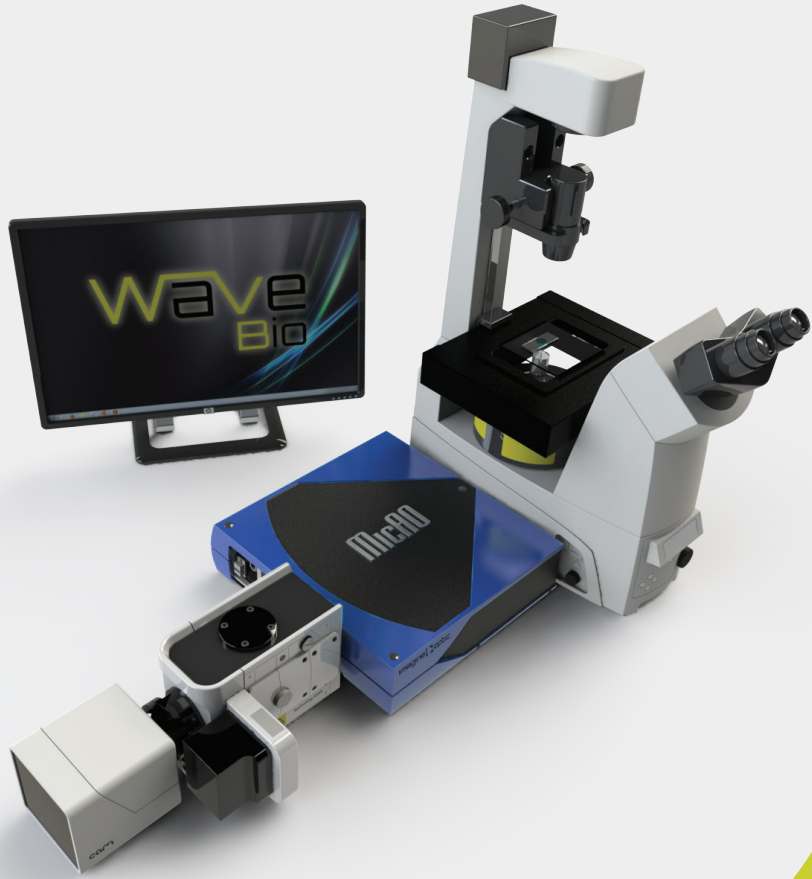


# MicAO



**DESIGNED FOR**  
SPINNING DISK MICROSCOPY

**EASY CORRECTION**  
OF ABERRATIONS

**BOOST**  
THE CONTRAST OF THE IMAGE

**PRECISE CORRECTION**  
OF LARGE ABERRATIONS

**ONE-OF-A-KIND ADAPTIVE OPTICS SOLUTION  
FOR SPINNING DISK MICROSCOPY**

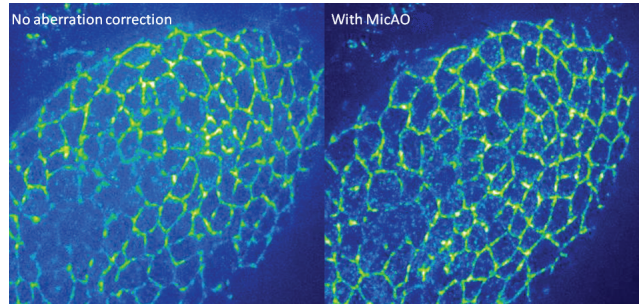
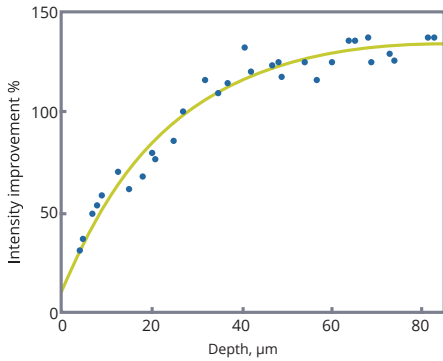
## WHY TO BUY

- Plug & Play design for easy implementation
- Increase the intensity of the image more than two times at depths exceeding 20 $\mu$ m
- Reduce the fluorescence excitation power
- USB 3.0 connectivity
- Compatible with any inverted frame microscope
- Adapted for broad wavelength range (400-700nm)
- The most complete adaptive optics software package WaveBio for easy control of aberrations

Optimize the image in each layer of the sample by correcting aberrations using integrated adaptive optics software package.

# MicAO : Adaptive optics solution for spinning disk microscopy

MicAO is a plug and play adaptive optics device specifically designed for spinning disk confocal microscopy. It corrects aberrations induced by the optical components of the microscope (objective, dichroic mirrors etc) as well as sample induced aberrations and this way increases the contrast and resolution of the acquired images. The user friendly software contains all the main algorithms of aberration detection developed by the adaptive optics scientific community. The MicAO can be operated using standalone user interface or via plug-in for  $\mu$ Manager, Metamorph<sup>®</sup> and NIS Elements<sup>®</sup>. The fully integrated aberration correction functions allow to boost the contrast of each imaging layer or to decrease the level of excitation laser deep in the sample.



*Left: The depth dependence of the improvement of the fluorescence signal after correction of aberrations in water based sample. Right: Two images of in vivo Drosophila brain expressing GFP:MyoII acquired with the spinning disk microscope before and after the correction of aberrations with MicAO (courtesy of Dr Maria-Alexandra Rujano Maldonado, group of R. Basto, Institut Curie, France).*

The most important aberration in live confocal imaging is the spherical aberration induced by the mismatch of refractive indexes of biological sample ( $n=1.35-1.38$ ) and the immersion oil of the objective ( $n=1.52$ ). We determined that the amplitude of the spherical aberration is linearly dependent with depth and MicAO software contains the algorithm for the automatic correction of spherical aberration when Z stacks are performed. This simple method does not require any images to be taken for the detection of aberrations, which preserves the sample from photo-bleaching, saves time during imaging and makes the method very easy to use. The contrast improvement in this case reaches two times at the depths exceeding 20 $\mu$ m.

## MICAO Specifications

<b>Objective compatibility</b>	Optimized for 100x, NA > 1.3
<b>Microscope compatibility</b>	Any standard inverted frame
<b>Optical transmission</b>	95%
<b>Operating wavelength range</b>	400-700nm
<b>Software</b>	WaveBio
<b>Plug-in</b>	Metamorph, $\mu$ Manager, NIS
<b>Camera interface</b>	I/O camera port
<b>Dimensions / weight</b>	410 x 390 x 100mm / 17kg
<b>Working environment</b>	Room temperature w/NCRH
<b>Power supply</b>	110-220V / 50-60Hz

[www.imagine-optic.com](http://www.imagine-optic.com)