Denoise.AI for the Nikon A1R HD25 Confocal Microscope

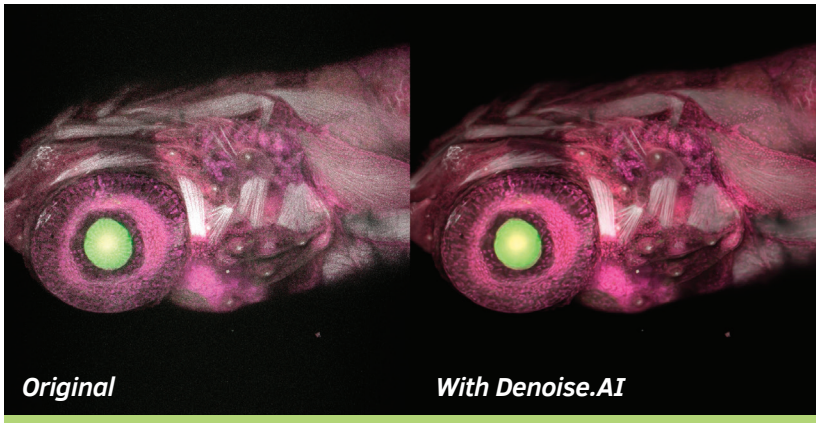

Image Credit: Maximum intensity projection resonant confocal image of multi-labeled Danio sp. prepared by Callen Wallace and Mike Calderon, Center for Biological Imaging, University of Pittsburgh for the Quantitative Fluorescence Microscopy (QFM) Course.

Nikon continues to improve the usability of its flagship A1R HD25 confocal microscope by introducing the new Denoise.AI software module for denoising of resonant-scanning confocal data.

The confocal microscope is the centerpiece of light microscopy core imaging facilities everywhere, but sometimes the scanning speed of these instruments presents difficulties when performing fast acquisitions of living samples. While the A1R HD25 features a high-speed resonant-scanning system to address this issue, the resulting images often include considerable noise since less signal is collected compared to slower-scanning systems.

To address this issue Nikon recently introduced Denoise.AI, a new artificial intelligence (AI)-based software tool for denoising resonant scanning confocal data. The resulting images have the remarkably low noise contribution, on par with data acquired with much slower scan speeds.

How does Denoise.AI work? The new Denoise.AI module for the NIS-Elements software utilizes a convolutional neural network using an MXNET framework that has been pre-trained with thousands of A1R HD25 resonant scanning confocal datasets. Because of the unique noise composition of resonant confocal data, the primary type of noise identified and removed is Poisson shot noise.

If you would like to learn more about Denoise.AI for the Nikon A1R HD25 resonant-scanning confocal microscope system, please visit the product page on our website:

www.microscope.healthcare.nikon.com/nis-elements-ai

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Nikon Instruments Inc. | www.microscope.healthcare.nikon.com | nikoninstruments@nikon.net