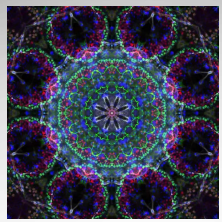
From Eye to Insight

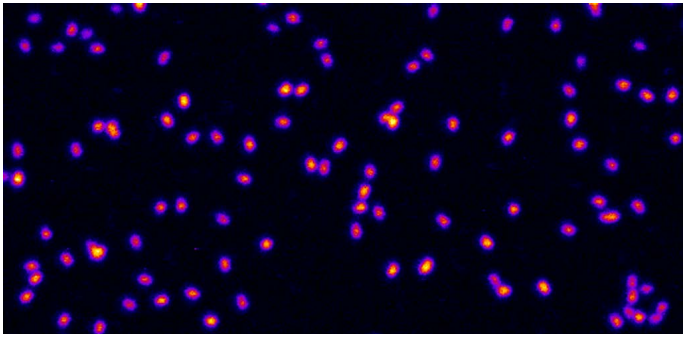
Leica
MICROSYSTEMS

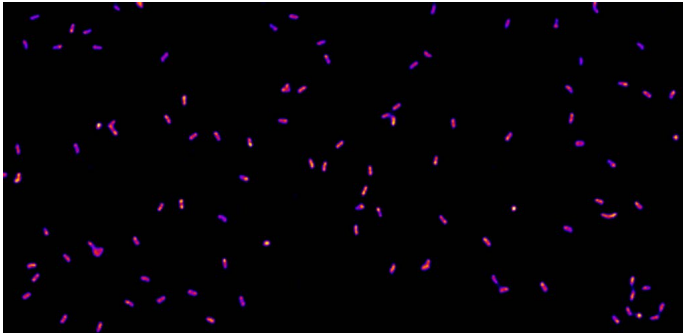


THE COLORS OF LIFE. SIMULTANEOUSLY.

HyVolution – Confocal Super-Resolution down to 140 nm

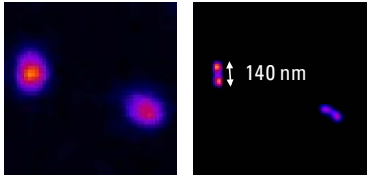
BENEFIT FROM CONFOCAL SUPER-RESOLUTION DOWN TO 140 NM





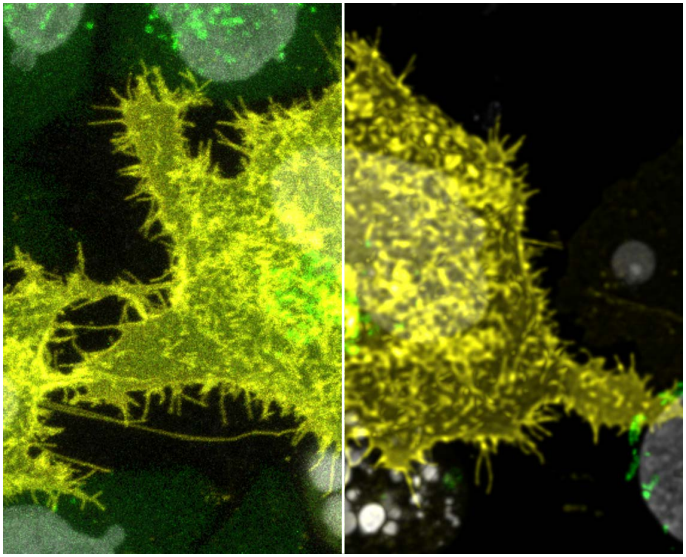
Super-sensitive detection with low noise is the key to resolving structures down to 140 nm with your confocal microscope.

HyVolution combines super-sensitive HyD detectors with industry leading Huygens deconvolution by SVI and CUDA™ GPU-accelerated data processing. Their synergies yield crisp multicolor images that show every detail.



Single molecule DNA-origamis with 140 nm defined spacing. Top: Confocal image. Bottom: HyVolution image. The measured distance between two spots is 140 nm (arrow).

MULTIPLE COLORS IN ONE GO



HyVolution in multicolor live cells. All three colors were acquired simultaneously (no sequential scanning) in 5D. HeLa Kyoto cells. Golgi-GFP(green), GPI-YFP (yellow), H2B-mCherry (white). Sample courtesy of Sabine Reither, EMBL Heidelberg, Germany.

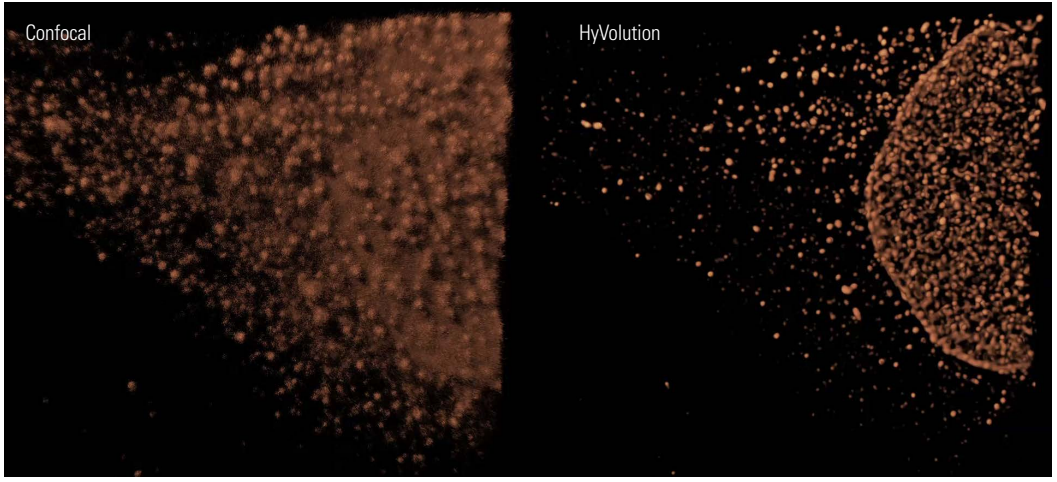
With the filter-free spectral detection system of the Leica TCS SP8, which can be equipped with one to four HyDs, you can simultaneously record up to five different dye emissions coming from your specimen without any losses.

This allows you to apply HyVolution also to fast dynamic processes with multiple colors, while single-detector arrangements lose time by sequential image acquisition.

MAKE EVERY PHOTON COUNT

Single photon counting provides much higher signal-to-noise ratio than traditional intensity averaging. The Leica HyD is the only photodetector with high time resolution that allows resolving single photons even at high count rates that are typically used for imaging.

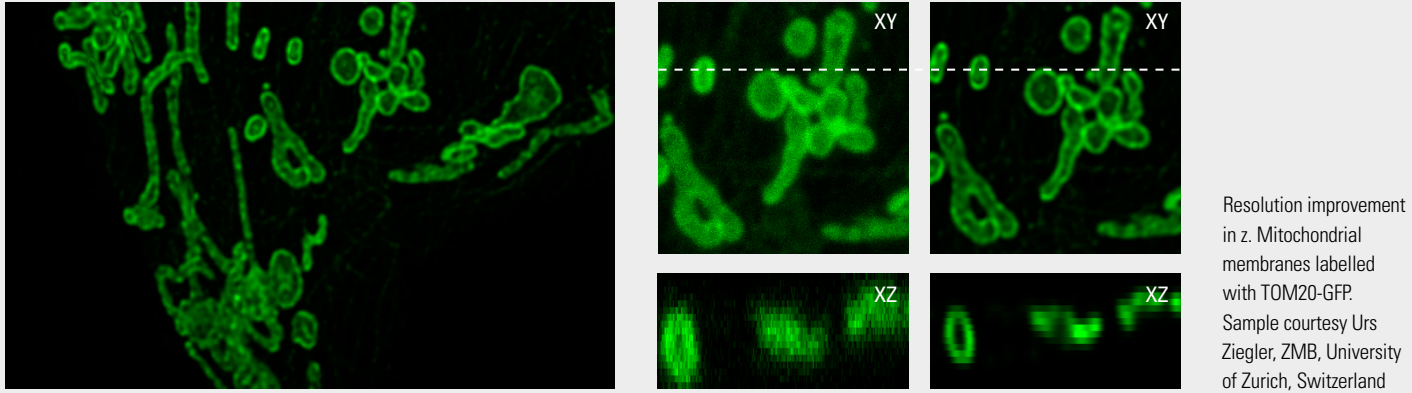
With the Leica HyD you get information from your images that is more reliable than from images taken with any other detector fully integrated into a confocal microscope.



Increase in resolution and contrast in nuclear pore complexes by HyVolution imaging. Sample: HeLa cells with NUP 153=Oregon Green 488.

PARALLEL ARCHITECTURE – GPU ACCELERATED

HyVolution can be applied to all specimens and experiments. You can increase the resolution of large z series, multiple colors in one specimen, and time series of live cells – or everything at once. The sophisticated calculations involving complex floating point operations can be considerably speeded up by GPU (graphics processing unit) accelerated computing with the CUDA high-performance hardware by NVIDIA. It dramatically increases in computing performance by parallel processing of computationally intensive processes and gives you access to your data up to 10 times faster.

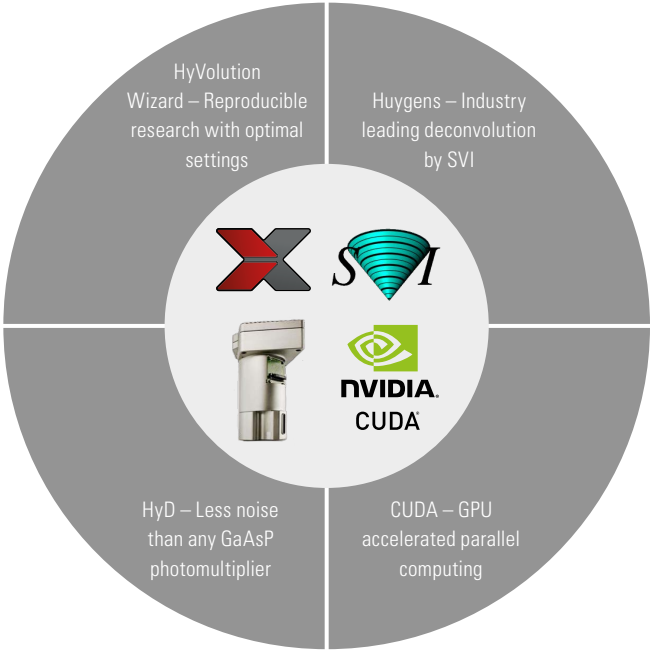


Resolution improvement in z. Mitochondrial membranes labelled with TOM20-GFP. Sample courtesy Urs Ziegler, ZMB, University of Zurich, Switzerland

HyVOLUTION –
A SMART PACKAGE FOR BETTER RESEARCH

With the smart HyVolution package you get confocal super-resolution for all your samples with all the advantages of your confocal microscope.

> Simultaneous multicolor imaging in live cells
> Confocal super-resolution down to 140 nm
> 2x increase in z resolution
> GPU accelereated parallel processing: up to 10 times faster
> HyVolution can be combined with advanced imaging like STED super-resolution, multiphoton imaging, and supercontinuum imaging with a white light laser



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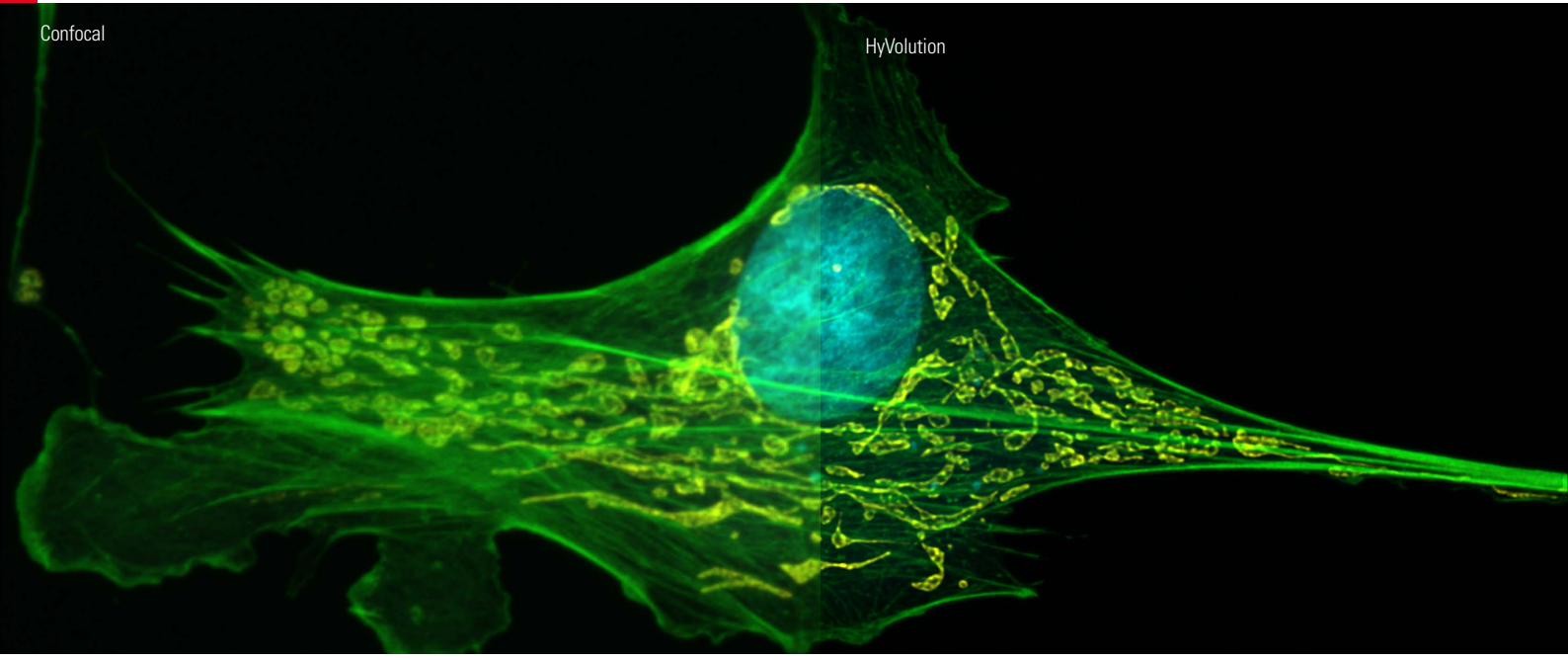

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