

[Leica SP5II](#) Environmental Chambered Whole Microscope Laser Scanning Spectral Confocal

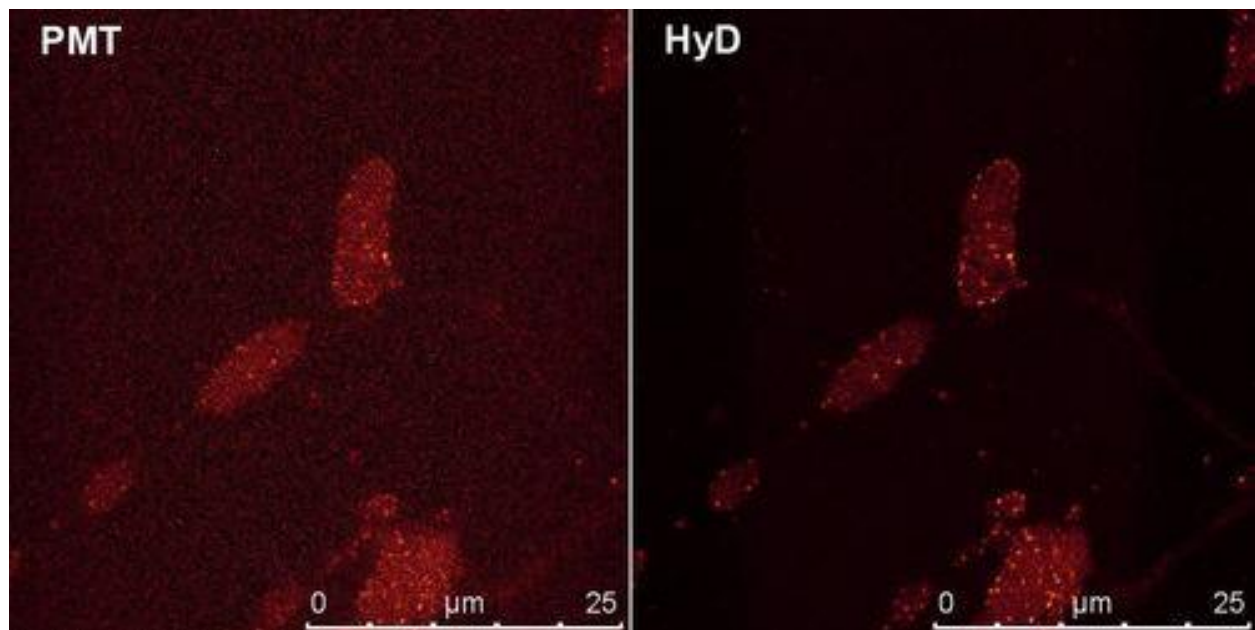
The Leica TCS SP5 II Confocal covers a broad range of requirements in confocal imaging - with the **full array of scan speeds at highest resolution**.

With its **high-efficiency SP detection** (Maximum five channels simultaneously) and **AOBS** (Acousto-Optical Beam Splitter), the system delivers **bright, low noise images** with minimal photo damage at high speed, and maximum flexibility of light filtering.

Hybrid Detector Leica HyD All-Purpose Super-Sensitivity

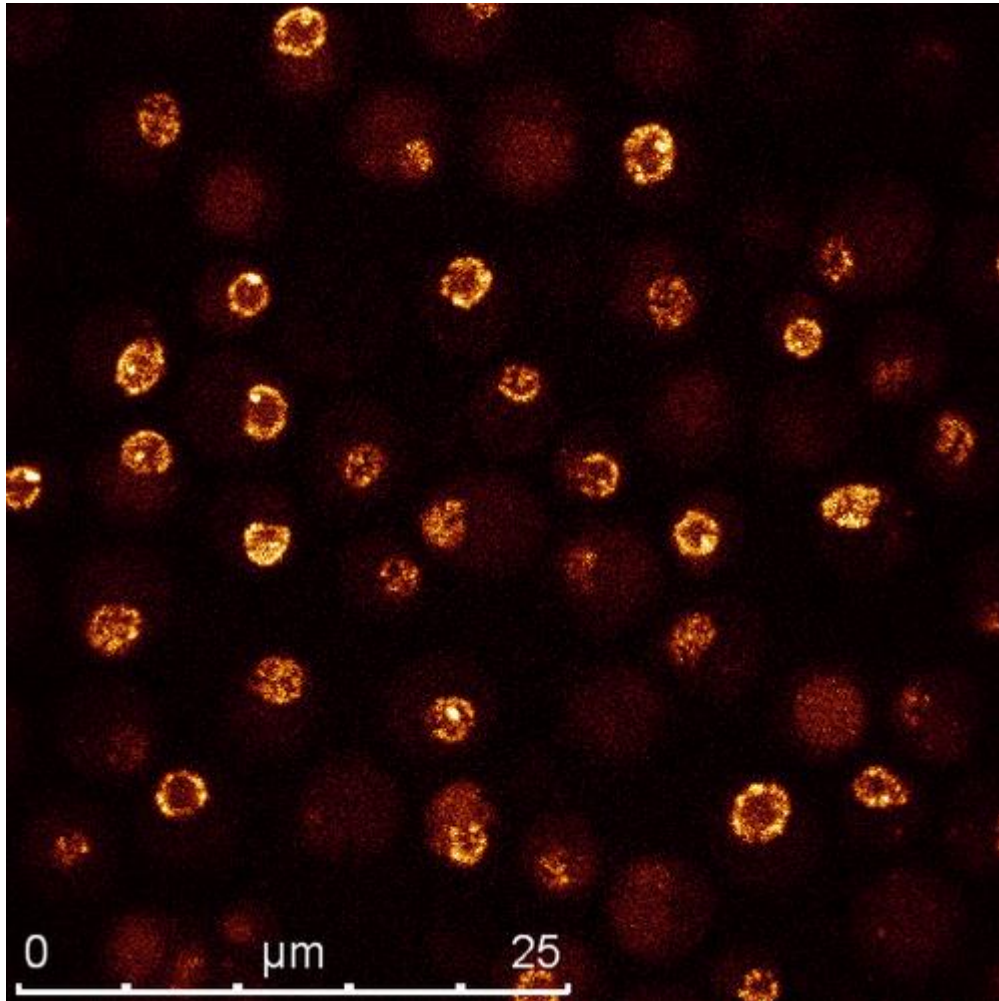
The Leica [HyD](#) hybrid detector for confocal imaging offers unparalleled contrast for brilliant, publication-ready images out of the box. Either photon counting or imaging, low light or bright fluorescence, high speed or crisp images, the Leica HyD accomplishes all. It sets the standard for super-sensitive imaging.

- Supersensitive photon detection with maximum quantum efficiency of ~45 % at 530 nm (twice as much as a standard PMT)
- Very low dark noise to render the finest details
- Photon counting capability for fluorescence detection



Low dark noise

Neuromuscular junction in *Drosophila melanogaster* labelled with Bruchpilot::mStrawberry. The background of the PMT image is blurred by residual noise amplified by the maximum projection, while the HyD images is devoid of noise.

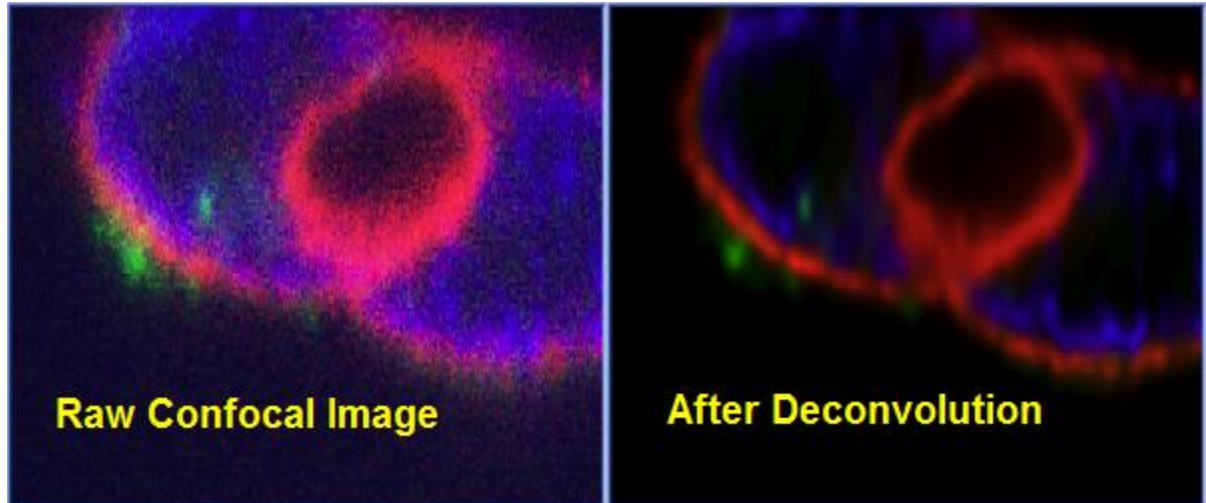


Increased cell viability

- 8 Laser lines:
 - 50mW diode 405nm
 - multi-line Argon (458, 476, 488, 496, 514 nm), powerful for **FRAP** Imaging
 - 1mW HeNe 543nm
 - 10mW HeNe 633nm
- Two scanners mounted on Tandem scanner
 - Conventional Scanner scans up to 1400 lines/s for best balance of image quality and speed

- Resonant Scanner scans at fixed 8000 lines/s for revealing fast dynamics of live cells.
- Objectives:
 - [5X/0.15 HC PL Fluotar, WD 13.7 mm](#), for viewing only, not for Confocal
 - [10X/0.4 multi-immersion HC PL APO CS, WD 0.34 mm](#)
 - [20X/0.70 multi-immersion HC PL APO CS, WD 0.26-0.17mm](#)
 - [40X/1.30 Oil HCX PL APO CS, WD 0.22 mm](#)
 - [63/1.4-0.6 Oil PL APO, WD 0.14 mm](#), for one channel Confocal
 - 100X/1.4-0.7 Oil HCX PL APO CS, WD 0.09 mm
- SuperZ Galvo Stage for precise x, y and z position control, inserts for glass slides and petri dishes up to 35 mm, and multi-well plate
- Environmental chambered whole microscope gives maximum flexibility for live cell/tissue imaging, the temperature controlled hot air heating condenser, stage and every objective, ensuring a stabilized and uniformed temperature, with mixed CO₂ gas flowing and moisture incubation. Live cell sample holder can be chambered slide, single dish, or multi-well plate.
- 4-Channel Leica SP [Spectral Fluorescence Detection](#), two HyD and two regular PMT detectors
- Spectral characterization of images, λ scan of emission spectral image map to diagnose and/or separate fluorescence emission, auto-fluorescence, and non-specific bonding.
- One CMT Transmitted light detector for bright field, or polarized or, DIC imaging.
- Eyepiece Fluorescence filter cubes:
 - A: long-pass DAPI, EX: BP360-380, DM: 400, EM: LP 425
 - I3: long-pass Blue, EX: BP450-490, DM: 510, EM: LP 515
 - N2.1: long-pass Green, EX: BP515-560, DM: 580, EM: LP 590
- Wizards for easy and guided FRAP, FRET AB, FRET SE imaging
- Offline [Leica LAS AF analysis](#) software to analyze Confocal images and FRAP, FRET SE, FRET AB data
- Offline [Huygens Essential Deconvolution Software Package](#)
 - Restores Confocal images back to original objects through mathematical de-blurring and de-noising automatically.
 - It enhances image resolution and signal/noise ratio, and removes noise background for both stacked and/or time-lapse images.
 - Deconvolution Express providing four auto deconvolution without setting up parameters in Deconvolution Wizards for each channel.
 - [Batch Express watches every image file just saved in a preset file folder. does automatic Deconvolution Express and export automatically to another preset file folder.](#)
 - Three options of 3D rendering for easy, efficient and realistic 3D visualization by Surface Rendering, Max Intensity Projection, and Simulated Fluorescence Projection.

[Offline Huygens Essential Deconvolution Software Package](#) (2017 Updated version) restores Confocal images back to original objects through mathematical de-blurring and de-noising. It enhances image resolution and signal/noise ratio, and removes noise background for both stacked and/or time-lapse images.



- Deconvolution features
 - GPU acceleration about 4X faster than CPU only competition
 - Deconvolution Express with four unsupervised profiles by clicking one button
 - Guided Deconvolution Wizard for higher quality and best quantification analysis
 - Extensive Image parameter checking
 - Generates Image Histograms to spot problems early
 - Automatic Background Estimation
 - Automatic Bleaching Effects correction
 - Automatic deconvolution of Time Series
 - Automatic correction for Spherical Aberration
 - Automatic Z-drift correction
 - Objector Stabilizer
 - Images progress Thumbnail representation
 - Handles up to 32 channels
 - Automatic and manual cropping of datasets in five dimensions (3D + time + channels)
 - Batch processing for delayed decon overnight
- Visualization: explore your images in 3D
 - Twin Slicer: easy comparison of original and deconvolved data
 - Ortho Slicer: visualize your data in all orthogonal directions simultaneously
 - Gallery Tool: view frames in a gallery style view
 - Maximum Intensity Projection (MIP) renderer: efficiently visualize large 3D datasets
 - SFP Volume Renderer: produces physically realistic 3D representations of your data.
 - Surface Renderer: easily visualize objects in your 3D data