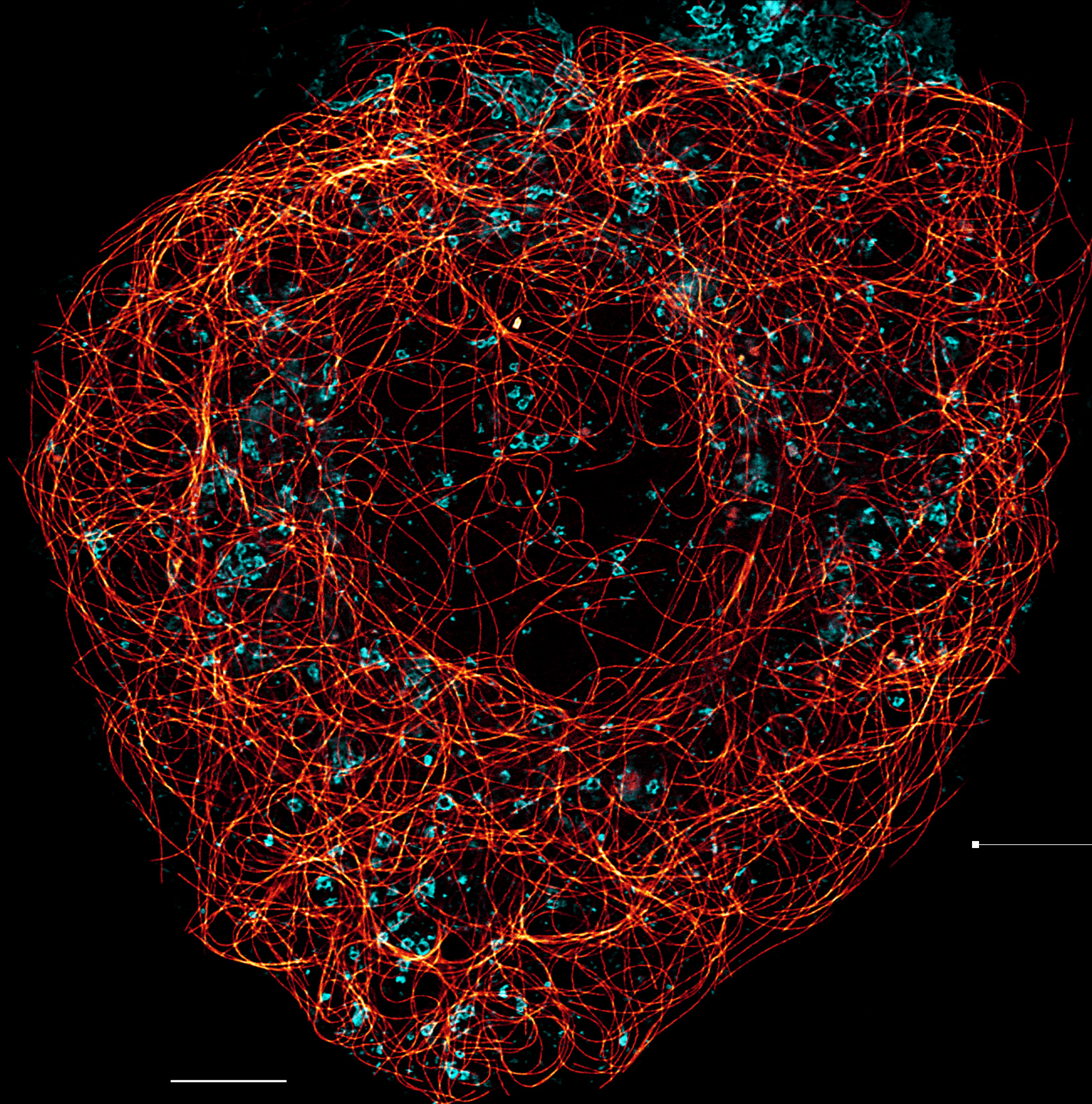


Leica

MICROSYSTEMS

STELLARIS STED
STELLARIS 8 STED
SUPER-RESOLUTION RE-IMAGINED

GET
FASTER
TO THE
TRUTH



SUPER-RESOLUTION RE-IMAGINED

STED and STELLARIS as a single system offer you brilliant confocal imaging with unique super-resolution capabilities to help you drive progress in science.

POWER

Study multiple events simultaneously and molecular interactions at the nanoscale and across the entire light spectrum, thanks to the unique combination of next generation white light lasers, an optimized beam path, fast Power HyD detectors, and up to 3 STED laser lines.

POTENTIAL

Take super-resolution imaging to the next level with TauSTED, our exclusive approach to STED, based on fluorescence lifetime information, that delivers cutting-edge image quality and gentle live-cell conditions.

PRODUCTIVITY

Acquire outstanding confocal and STED images easily and set up your experiment in a few clicks thanks to the ImageCompass user interface.

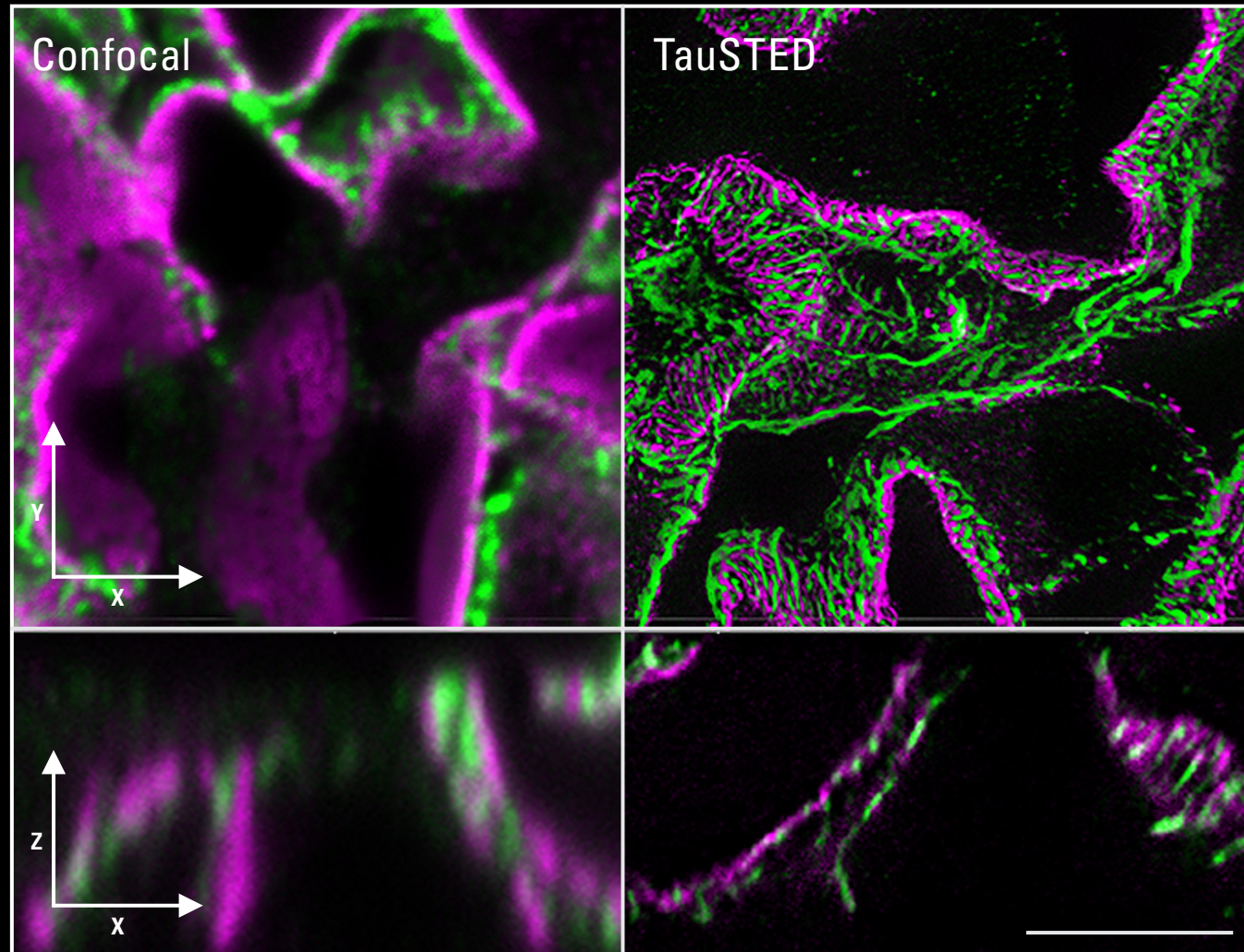
Multicolor STED for Cell Biology.

Visualizing the spatial distribution of multiple subcellular structures in live cells is critical for assessing their interaction and how that translates into cellular function or pathology. With TauSTED, multicolor live-cell STED can resolve the intricate cytoskeleton network and its interaction with trafficking vesicles.

Multicolor live-cell TauSTED with 775 depletion laser: cytoskeleton network labeled with SiR-tubulin (glow) and trafficking vesicles labeled with CF594-WGA (cyan). Scale bar is 5 μm . SiR-tubulin is available from Spirochrome. CF594 courtesy of Biotium, Inc.

POWER

SEE MORE



Analyze molecular relationships in your sample

To characterize the mechanisms behind processes, such as cell transport, differentiation, and cell division, you need to have flexibility to design your experiment and adequate speed to observe specific biomolecule dynamics in their native environment. At the same time, you also obtain the best possible image quality.

Thanks to the combination with the STELLARIS platform, STED benefits from the Leica next generation White Light Laser (WLL) / AOBS technology, a newly optimized beam path, and spectral detection driven by the Power HyD detector family. Together with the availability of multiple STED lines (592, 660, 775 nm), STED enables you to characterize structures with nanoscale detail, perform colocalization studies with the highest flexibility in terms of fluorophore selection, and follow highly dynamic processes.

MAXIMIZE THE NUMBER
OF FLUOROPHORES AT
THE NANOSCALE, EVEN
IN TISSUE

STED for kidney disease research.

Imaging of different proteins at nanoscopic resolution in kidney research can complement information from the current state of the art electron microscopy. Understanding the spatial context and rearrangement of proteins in podocytes has the potential to play an important role in the study of kidney pathology process.

Multicolor 2D and 3D TauSTED with 775 of non-cleared mouse kidney immunostained for synaptopodin (green) and nephrin (magenta). The STED WHITE glycerol lens provides optimal adaptive correction to resolve the proteins within the highly compact tissue architecture. Scale bar is 10 μm . Sample courtesy of Victor Puelles, Milagros Wong, and Jan Czogalla, Universitätsklinikum Hamburg-Eppendorf, Germany.



POTENTIAL
DISCOVER MORE

TauSTED: Nanoscopy meets lifetime

Expand the potential of your STED experiments thanks to the outstanding resolution, image quality, and sample protection provided by our proprietary TauSTED technology.

TauSTED combines the optical signals from STED and the physical information from the fluorescence lifetime at confocal speeds. This approach uses phasor analysis in a novel way that delivers outstanding STED resolution* and image quality, while removing background noise, even at low excitation and STED power.

You can apply TauSTED for all your STED experiments, in particular for multicolor colocalization studies and when you need to follow fast processes in live specimens, for extended periods, or over large volumes. When used in combination with FALCON, you can even separate spectrally overlapping STED dyes.

**Resolution <30 nm (lateral) and <100 nm (axial), depending on sample and fluorophore.*

PERFORM EXTENDED
MULTICOLOR LIVE-CELL
IMAGING EXPERIMENTS
WITH GENTLE STED

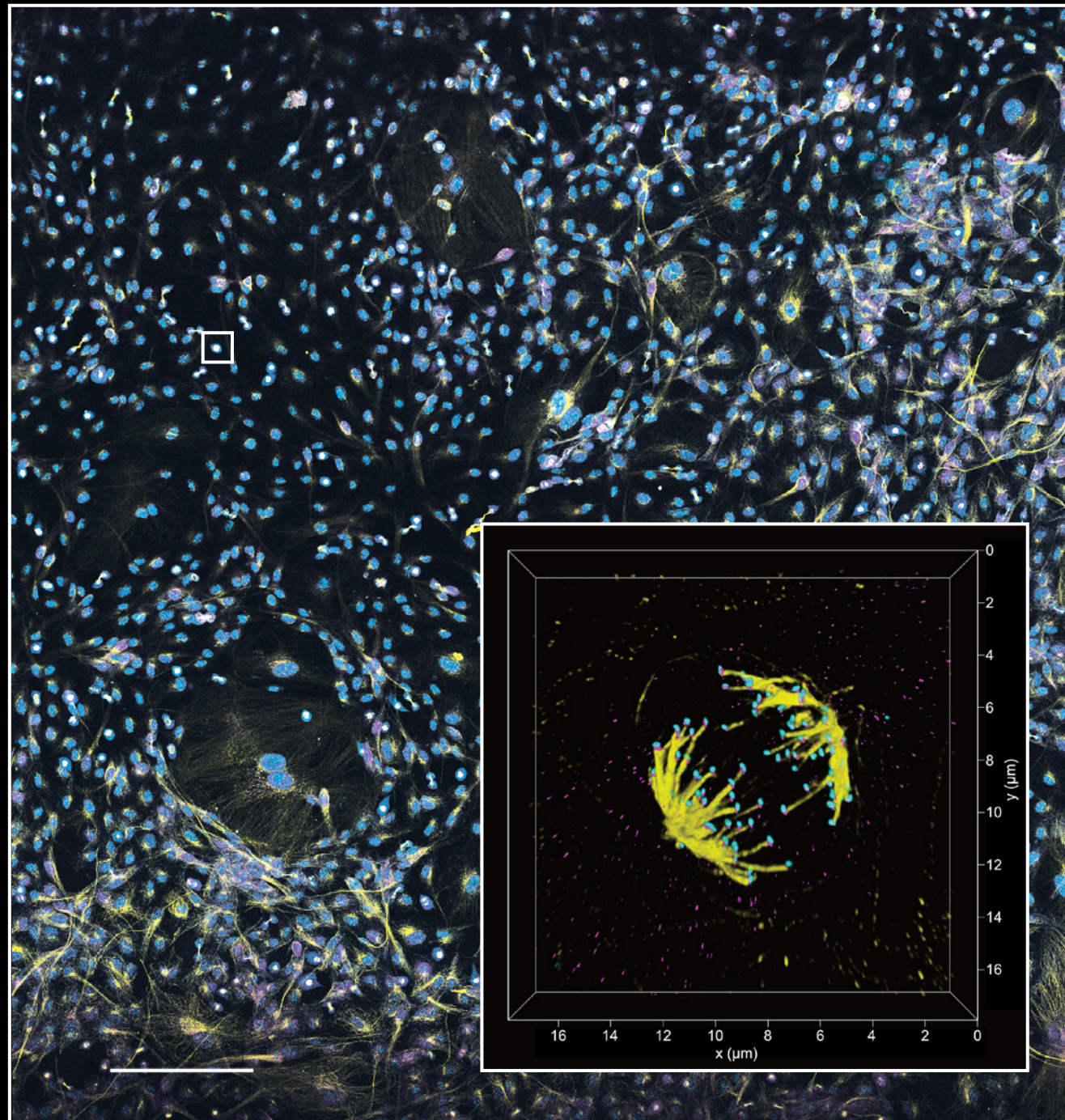
STED for fast dynamics in cell biology.

Tracking fast spatial distribution changes of multiple subcellular structures in live cells helps you better understand their localization changes under physiological and pathological conditions.

Live-cell TauSTED showing three distinct cellular structures in U2OS cells. Labels were used for actin (SiR-actin, glow), microtubules (SPY555-tubulin, cyan), and membranes (CF488-WGA, green). TauSTED was performed with three different STED lines (775, 660, and 592 nm, respectively). Scale bar is 5 μ m. SiR and SPY probes are available from Spirochrome and CF dyes from Biotium, Inc.

PRODUCTIVITY

DO MORE



STELLARIS provides straightforward access to STED for both beginners and experts. Now you can design your experiments combining confocal and multicolor, as well as 2D and 3D STED, with just a few clicks.

ImageCompass

Get results you can trust thanks to the smart guidance of ImageCompass during experimental setup. It focuses on your sample characteristics and defines the best settings for your experiment.

One-click beam auto-alignment

Ensure the highest STED performance with one-click beam auto-alignment, protecting your sample from light irradiation and achieving the optimal positioning of the laser foci in a fully automated way.

LAS X Navigator

Image large areas in no time with LAS X Navigator and select your regions of interest for STED imaging.

Validate your results fast and on a single platform

The combination of STED and STELLARIS means you can validate your findings using different dimensions of data from your specimen. STED, confocal, LIGHTNING, and TauSense data are all available with the same system. You can access your raw data for quantification.

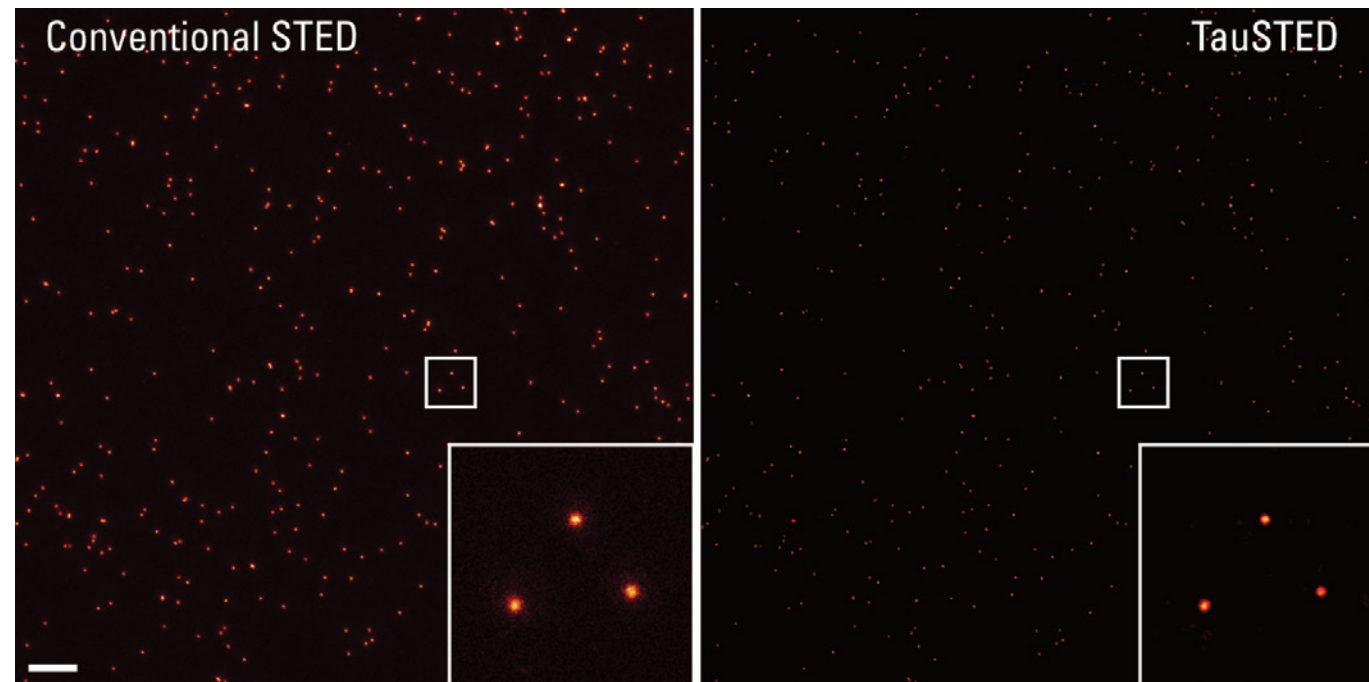
GET THE BIG
PICTURE AND THE
NANOSCOPIC
INSIGHT WITH
LAS X NAVIGATOR

STED for large samples.

Getting a rapid overview of the sample is very important when trying to find the right region of interest or to choose the right cell where you want to perform STED in 3D. LAS X Navigator overview, for example, allows for picking the rare mitotic events and perform 3D STED in the desired position of the sample.

Three-color 3D TauSTED on kinetochore assembly during cell mitosis in cells immunostained for tubulin (Star Orange, cyan), CENP-C (AlexaFluor 488, yellow), and BUB1 (Star Red, magenta). TauSTED was performed with three different STED lines (660, 592, and 775 nm, respectively). Scale bar: 200 μm . Sample courtesy of Dr. Carlos Sacristan Lopez, Hubrecht Institute, Utrecht, Netherlands.

PUSHING RESOLUTION WITH TauSTED



STED and DNA origami imaging: TauSTED with 775 delivers resolutions <30nm on GATTA-Bead R whose nominal size is 23 nm. Scale bar: 1 μ m.

TauSTED measures the fluorescence lifetime information acquired in every STED experiment and maps the STED response of the fluorophore in real time. Access to this information allows you to increase image quality (signal-to-noise), eliminate photons from the background using principles of physics, and push the resolution beyond the limits of intensity-based STED, no matter which excitation and STED line (592, 660, 775) you use.

TauSTED does all this in an automated way, so you can focus on your sample and see details that you would miss otherwise.

SPECIFICATIONS



Product features

Feature	STELLARIS STED	STELLARIS 8 STED
Confocal	standard	standard
TauSense	standard	standard
TauSTED	standard	standard
Image Compass	standard	standard
LIGHTNING	standard	standard
Dynamic Signal Enhancement	standard	standard
LAS X Navigator	standard	standard
WLL range	485-685 nm	440-790 nm
Detectors	HyD S, HyD X	HyD S, HyD X, HyD R
Resonant scanner	optional	optional
FALCON	not available	optional
FCS	not available	optional



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LASER RADIATION
VISIBLE AND INVISIBLE- CLASS 3B
AVOID DIRECT EXPOSURE TO BEAM

P < 500 mW 350- 700nm
IEC 60825-1: 2014

LASER RADIATION
VISIBLE AND INVISIBLE- CLASS 4
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION

Paverage < 4 W 350- 1600nm >40fs
IEC 60825-1: 2014

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