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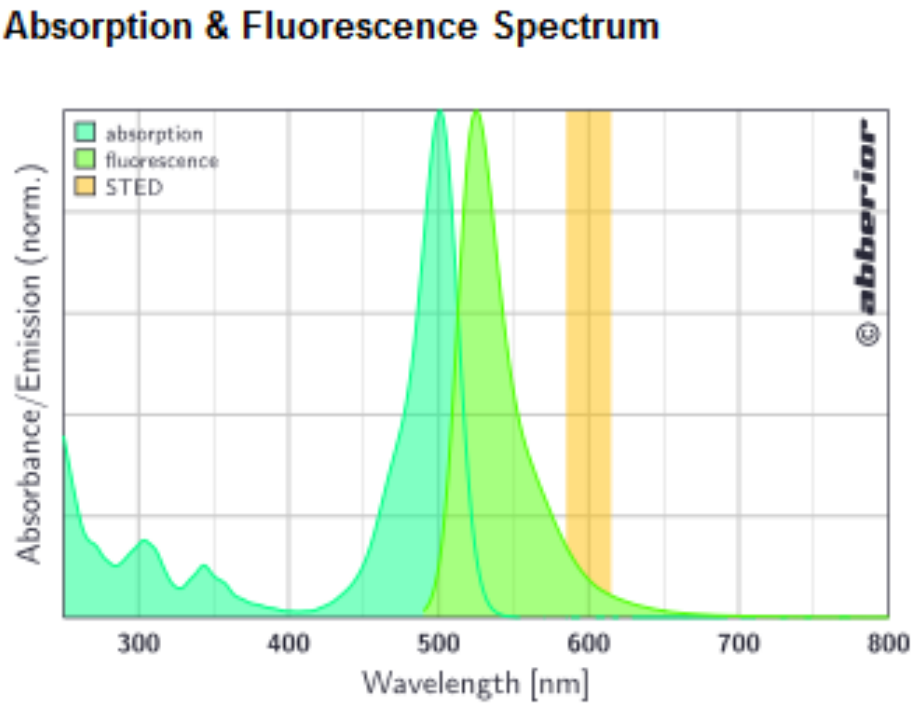
61048 Abberior® STAR 488, NHS ester



Key Features

- STED dye of choice at 488 nm excitation
- Ideal depletion behaviour in STED microscopy ~590 nm
- 2-color labeling partner with STAR 440SX for 2-color STED microscopy

Description

Abberior STAR 488 is the latest development for STED microscopy. It is a very bright green fluorescent dye that can be very effectively excited at the prominent 488 nm laser line. Abberior STAR 488 can substitute dyes like Oregon Green® 488, Atto® 488 or Alexa Fluor® 488.

STED: The dye can most effectively be depleted in STED microscopy at 585-605 nm.

Chemical Data : Abberior® STAR 488 NHS ester

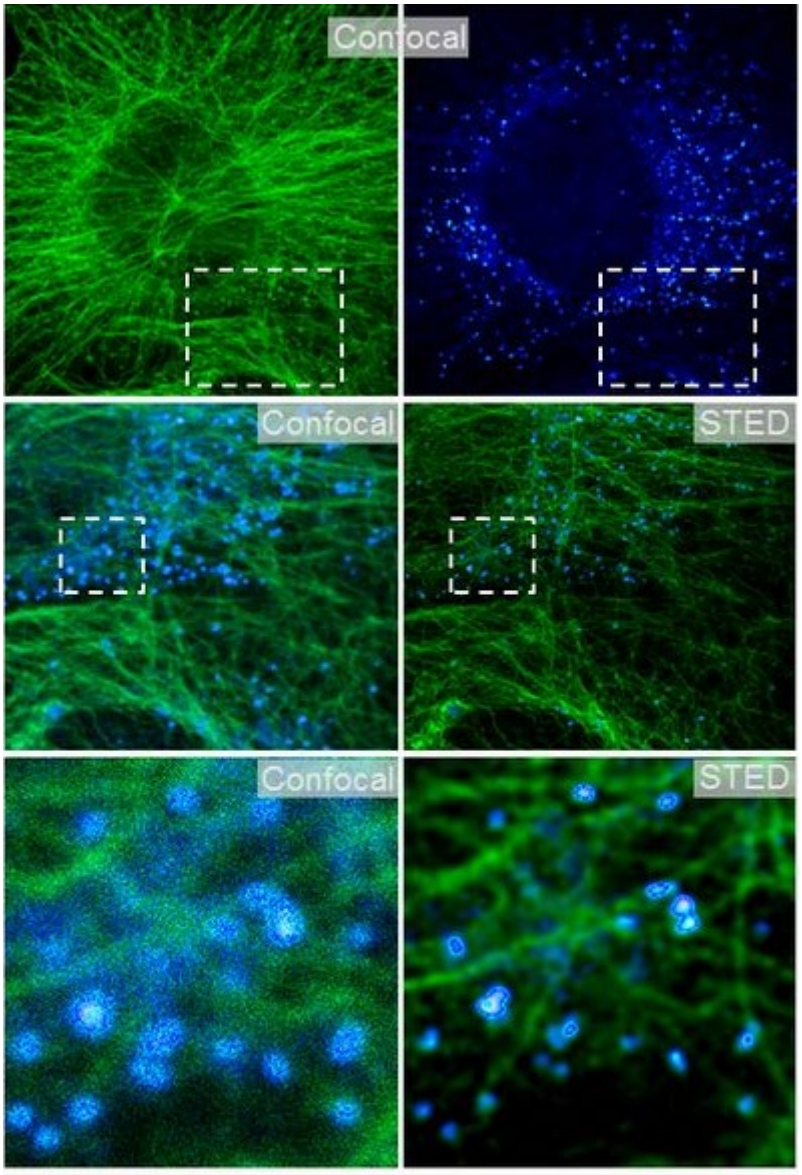
Chemical Structure:	on request
Molecular Formula:	$C_{29}H_{19}F_6N_3O_{13}S_2$
Molecular Weight:	795.6 g/mol
Exact Mass:	795.02 Da
Solubility:	PBS, pH 7.4; water; DMF; DMSO; aq. acetonitrile; MeOH
Polarity:	polar (anionic)
Net Charge (at PH 7.4):	-2
Content:	> 90 %

Photophysical Data : Abberior® STAR 488 NHS ester

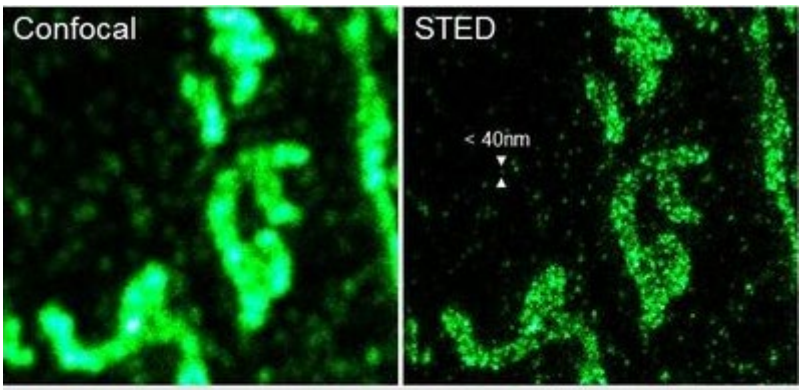
Absorption Maximum, λ_{max}, nm:	503 (PBS, pH 7.4) 504 (water) 507(MeOH+0,1%TFA)
Fluorescence Maximum, λ_{fl}, nm:	524 (PBS, pH 7.4) 525 (water) 531 (MeOH)
Extinction Coefficient, ε, $M^{-1}cm^{-1}$:	65 000 (PBS, pH 7.4) 79 000 (water) 86 000 (MeOH+0.1%TFA)
Correction Factor, $CF_{260} = \varepsilon_{260}/\varepsilon_{max}$:	0.28 (PBS, pH 7.4) 0.27 (water)
Correction Factor, $CF_{280} = \varepsilon_{280}/\varepsilon_{max}$:	0.14 (PBS, pH 7.4) 0.13 (water)
Recommended STED Wavelength, λ_{STED}, nm:	585 – 605
Fluorescence Quantum Yield, η:	0.89 (PBS, pH 7.4; water) 0.91 (MeOH)
Fluorescence Lifetime, τ:	3.9 ns (MeOH)

Applications

Below is an image taken with Abberior STAR 488 in combination with Abberior STAR 440SX in the Leica STED CW system as a reference.

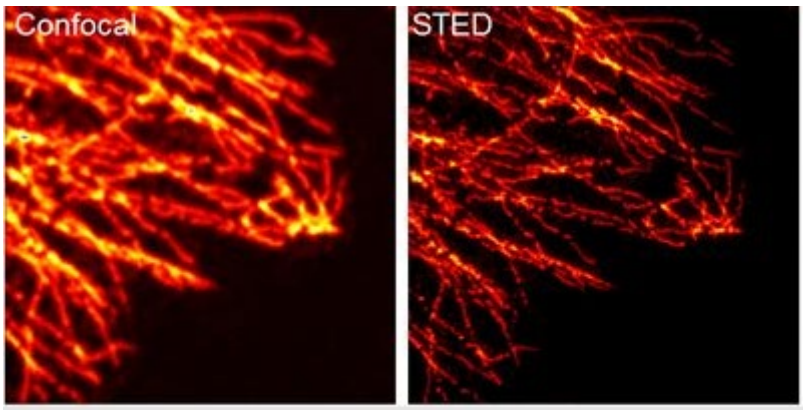


2-color STED image with Abberior STAR488 (blue) and Abberior STAR440SX (green) taken with the Leica CW STED microscope. Green depicts tubulin fibers while the blue color represents the peroxisomal membrane protein PMP70. Image courtesy of Leica Microsystems CMS GmbH, Mannheim, Germany.



Comparison of a confocal (left) and the corresponding STED (right) microscopy image of the mitochondrial protein TOM20 obtained with an Abberior STAR 488 labelling and a depleting beam at 590nm.

The image below is taken with an Abberior STAR 488 labeling and via using the Abberior EASYDOnut phaseplate.



Comparison of a confocal (left) and the corresponding STED (right) microscopy image of tubulin strands obtained with a STAR 488 labelling and using the Abberior EASYDOnut phaseplate.

Abberior STAR 488 is the dye of choice for excitation at 488 nm. Even more, the dye is particularly designed and tested for 2-color STED microscopy in combination with our STAR 440SX dye using a 590nm laser. The dye has been very successfully tested in the Leica 2-color TCS STED CW microscope.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.