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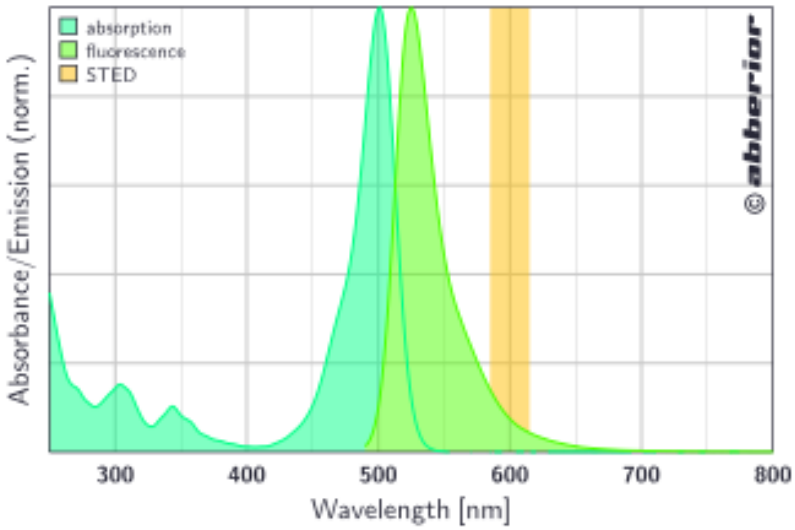
Product Information

53366 Anti-Mouse IgG-Abberior® STAR 488 antibody produced in goat



Key Features

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

Product Description

Abberior STAR488 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.

Anti-mouse IgG (whole molecule) (Sigma M8890) is developed in goat using purified mouse IgG as the immunogen. Affinity isolated antigen specific antibody is purified from goat anit-mouse IgG antiserum to remove essentially all goat serum proteins, including immunoglobulins, which do not specifically bind to mouse IgG.
The antibody preparation is solid phase adsorbed with human serum proteins to ensure minimal cross reactivity. Goat anti-mouse is conjugated to Abberior STAR 488 the further purified via gel permeation chromatography and dialysis to remove unbound Abberior dye.

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

Chemical Data : Abberior® STAR 488

Solubility:	water, alcohols, acetonitrile, DMSO, DMF
Polarity:	polar
Charge:	-2 (when conjugated)
Purity:	> 90 %

Photophysical Data : Abberior® STAR 488

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, $M^{-1}cm^{-1}$:	64 500 (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)

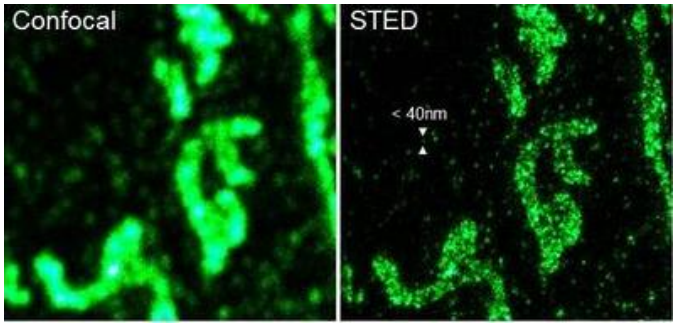
Storage / Stability

For continuous use, store at 2-8 °C for up to three months. For extended storage, the solution may be frozen in working aliquots at -20 °C. Frozen aliquots are stable for at least six month. Repeated freezing and thawing is not recommended. Storage in *frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Protect fluorescent conjugates from light.

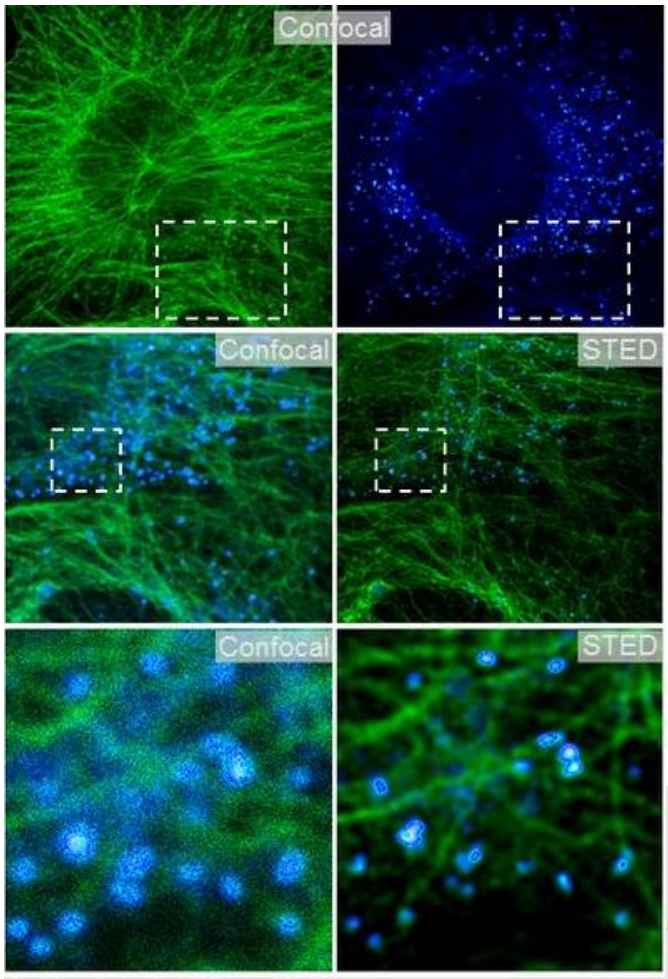
Applications

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 works exceptionally well with the Abberior Instruments 595nm STED microscope as well as with the Leica 2-color TCS STED CW microscope.

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

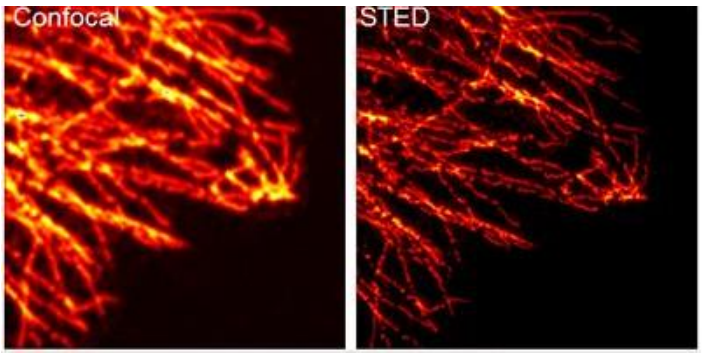


Comparison of a confocal (left) and the corresponding STED (right) microscopy image of the mitochondrial protein TOM20 obtained with an Abberior STAR 488 labelling and a depleting beam at 590nm.



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.

The image below is taken with an Abberior STAR488 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.

Literature

1. G. Y. Mitronova et al. "New Fluorinated Rhodamines for Optical Microscopy and Nanoscopy" *Chem. Eur. J.*, 16, 4477-4488 **(2010)**
2. Leica Microsystems recommendations for 2-color applications
3. M.P. Clausen "Pathways to optical STED microscopy" *NanoBioImaging*, 1-12 **(2013)**
4. S. M. Polyakova et.al. "New GM1 Ganglioside Derivatives for Selective Single and Double Labelling of the Natural Glycosphingolipid Skeleton" *Eur. J. Org. Chem.*, 5162 **(2009)**

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.