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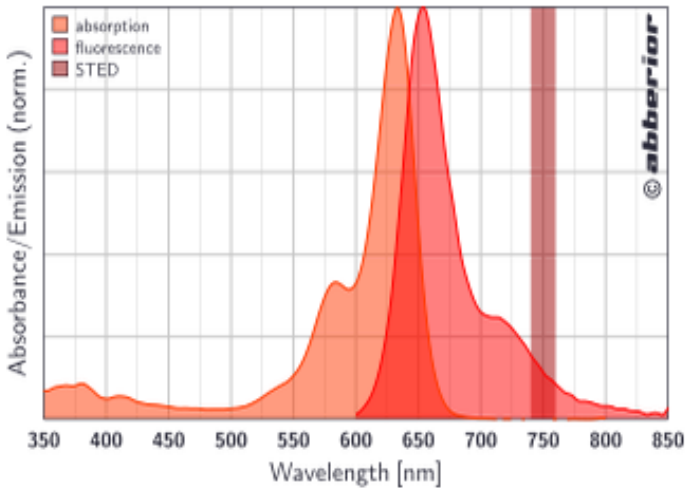
Product Information

53399 Anti-Rabbit IgG-Abberior® STAR 635P antibody produced in goat



Key Features

- First phosphorylated dye
- Unmatched, background free STED imaging contrast
- Verified in Abberior Instruments and Leica STED microscopes
- 2-color partner with Abberior STAR 470SXP, Abberior STAR 520SXP, Abberior STAR 580 or Abberior STAR 600

Product Description

Abberior **STAR 635P** is the first member of an entirely **new class of dyes** introduced exclusively by Abberior – first commercially available **phosphorylated fluorescent dye**. The dye excels in its photophysical parameters, e.g. very bright, very stable and it enables basically background free imaging. The dye works exceptionally well with the Abberior Instruments STED microscope as well as with the Leica STED microscope.

Anti-rabbit IgG (whole molecule) (Sigma R3128) is developed in goat using purified rabbit IgG as the immunogen. Affinity isolated antigen specific antibody is purified from goat anit-rabbit IgG antiserum to remove essentially all goat serum proteins, including immunoglobulins, which do not specifically bind to rabbit IgG.
Goat anti-rabbit is conjugated to Abberior STAR 635P the further purified via gel permeation chromatography and dialysis to remove unbound Abberior dye.

Abberior STAR 635P can substitute ATTO® 647N, AlexaFluor® 647, or Cy5®. It can be excited with diode lasers (635 nm, 650 nm) or with the 647 nm line of a Krypton laser. For STED, a depletion wavelength of 750 nm - 780 nm is recommended. Please see reference1 for detailed characteristics.
Best results are obtained with freshly prepared samples.

Chemical Data : Abberior® STAR 635P

Solubility:	water, acetonitrile, DMSO, DMF
Polarity:	hydrophilic
Charge:	negative (when conjugated)
Purity:	> 90 %

Photophysical Data : Abberior® STAR 635P

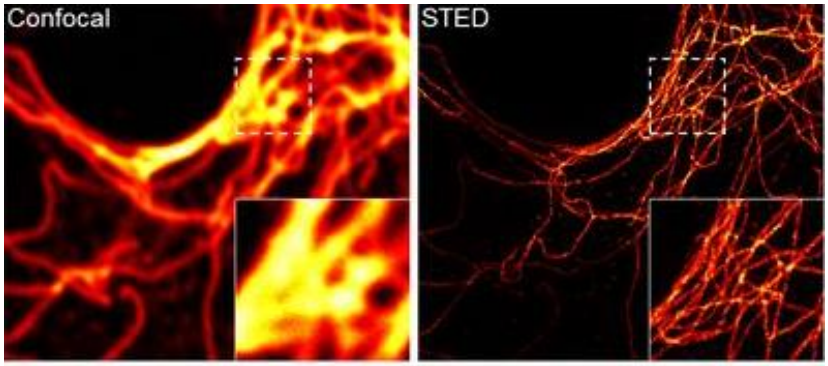
Absorption Maximum, λ_{abs}, nm:	638 (PBS, pH 7.4; water) 634 (aq. acetonitile; MeOH)
Fluorescence Maximum, λ_{fl}, nm:	651 (PBS, pH 7.4; water; aq. acetonitrile; MeOH)
Extinction Coefficient, ε, $M^{-1}cm^{-1}$:	120 000 (PBS, pH 7.4; water) 130 000 (aq. acetonitrile; MeOH)
Correction Factor, $CF_{260} = \varepsilon_{260}/\varepsilon_{max}$:	0.21 (PBS, pH 7.4; water) 0.23 (aq. acetonitrile; MeOH)
Correction Factor, $CF_{280} = \varepsilon_{280}/\varepsilon_{max}$:	0.40 (PBS, pH 7.4; water) 0.41 (aq. acetonitrile; MeOH)
Recommended STED Wavelength, λ_{STED}, nm:	750 – 780
Fluorescence Quantum Yield, η:	0.90 (PBS, pH 7.4)
Fluorescence Lifetime, τ:	3.3 ns (PBS, pH 7.4)

Storage / Stability

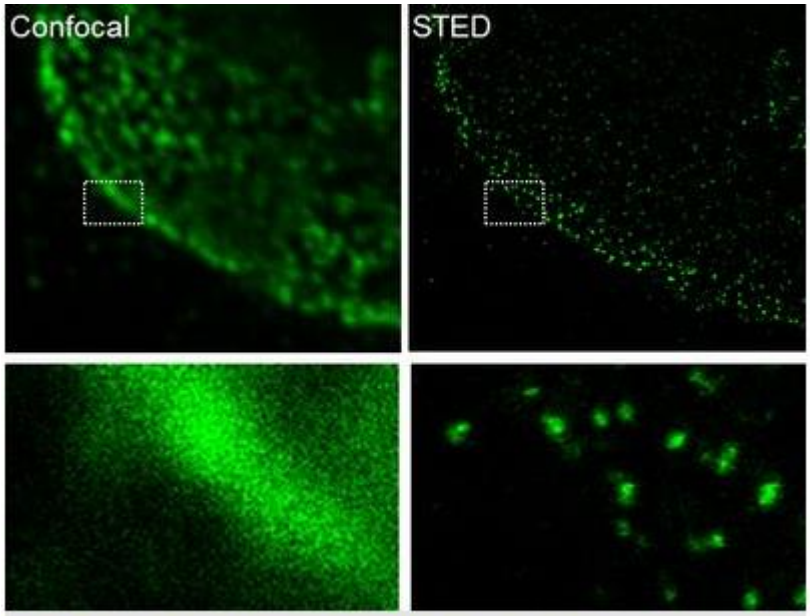
For continuous use, store at 2-8 °C for up to three months. For extended storage, the solution may be frozen in working aliquots at -20 °C. Frozen aliquots are stable for at least six month. Repeated freezing and thawing is not recommended. Storage in *frost-free" freezers is not recommended. If slight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

Applications

Abberior STAR 635P particularly well suits the Leica TCS STED system and delivers high-resolution STED images with unmatched quality, e.g. extremely low/no background. The dye serves as an ideal partner for several **2-color STED packages**.



Comparison of confocal and STED image of Tubulin stained with STAR635. Note that both images represent raw data and the absence of virtually any background.



Confocal and STED recording of the Nuclear Pore complex protein Nup53 in fixed PtK2 cells. Note both recordings are raw data

Literature

1. Leica Microsystems recommendations for 2-color applications
2. PicoQuant Press release "gated STED increases the resolution of PicoQuant's time-resolved confocal microscopy platform MicroTime 200" *www.picoquant.com* **(2014)**
3. C.A. Wurm et.al. "Novel red fluorophores with superior performance in STED microscopy", *Optical Nanoscopy*, 1, 7 **(2012)**
4. K. Kolmakov et al. "Red-Emitting Rhodamines with Hydroxylated, Sulfonated, and Phosphorylated Dye Residues and Their Use in Fluorescence Nanoscopy" *Chem. Eur. J.* 18, 12986 –12998 **(2012)**
5. G. Lavieu et al. "The Golgi ribbon structure facilitates anterograde transport of large cargoes" *Molecular Biology of the Cell*, 25 (19), 3028-3036 **(2014)**
6. K. Kolmakov et al. "Polar Red-Emitting Rhodamine Dyes with Reactive Groups: Synthesis, Photophysical Properties, and Two-Color STED Nanoscopy Applications" *Chem. Eur. J.*, 20, 146-157 **(2014)**
7. F. Bergermann et al. "2000-fold parallelized dual-color STED fluorescence nanoscopy" *Optics Express 211*, 23 (1), 211-223 **(2015)**
8. J. Varghese Chacko et al. "Probing Cytoskeletal Structures by Coupling Optical Superresolution and AFM Techniques for a Correlative Approach" *Cytoskeleton*, 70, 729-740 **(2013)**
9. F. Göttfert et al. "Coaligned Dual-Channel STED Nanoscopy and Molecular Diffusion Analysis at 20 nm Resolution" *Biophysical Journal*, 105, L01-L03 **(2013)**
0. L. D. Hughes et al. "Choose Your Label Wisely: Water-Soluble Fluorophores Often Interact with Lipid Bilayers" *PLOS ONE*, 9 (2) **(2014)**

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.