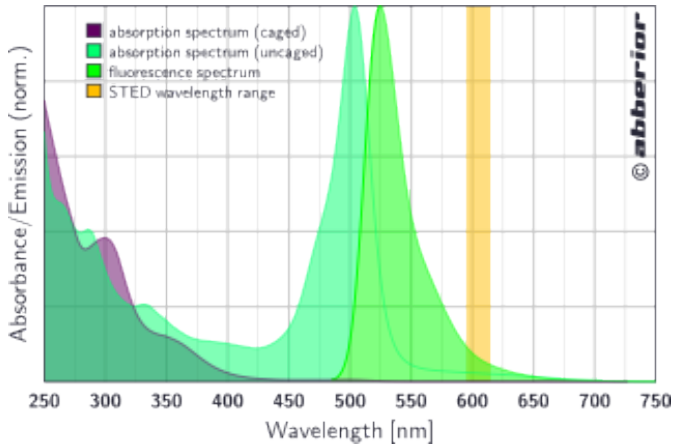
96013 Abberior® STAR 635, maleimide

Description

Abberior STAR 635 is the latest dye development for STED imaging in the red spectral region. It features exceptional brightness and ultralow background, delivering stunning STED images. The dye is also recommended by Leica Microsystems for use in the Leica STED Ti:Sa microscope. Abberior STAR 635 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 around 750 nm is recommended.

Best results are obtained with freshly prepared samples.



Key Features

- Exceptionally bright and stable red fluorescent dye
- Ideal for Ti:Sa STED including the Leica TCS STED system
- High water solubility

Chemical Data : Abberior® STAR 635

Chemical Structure:	on request
Molecular Formula:	$C_{49}H_{51}F_3N_4O_{11}S_2$
Molecular Weight:	993.1 g/mol
Exact Mass:	992.29 Da
Solubility:	PBS, pH7.4; water; DMF; DMSO; aq. acetonitrile; MeOH
Polarity:	polar (zwitterionic)
Net Charge (at pH 7.4):	0
Purity:	> 90 %

Photophysical Data : Abberior® STAR 635

Absorption Maximum, λ_{abs}, nm:	635 (PBS, pH 7.4; water; aq. acetonitrile; MeOH)
Fluorescence Maximum, λ_{fl}, nm:	655 (PBS, pH 7.4; water) 656 (aq. acetonitrile; MeOH)
Extinction Coefficient, ε, $M^{-1}cm^{-1}$:	110 000 (PBS, pH 7.4) 115 000 (aq. acetonitrile)
Correction Factor, $CF_{260} = \varepsilon_{260}/\varepsilon_{max}$:	0.26 (PBS, pH 7.4; water) 0.27 (aq. acetonitrile)
Correction Factor, $CF_{280} = \varepsilon_{280}/\varepsilon_{max}$:	0.38 (PBS, pH 7.4; water) 0.41 (aq. acetonitrile)
Recommended STED Wavelength, λ_{STED}, nm:	750 – 780
Fluorescence Quantum Yield, η:	0.88 (PBS, pH 7.4)
Fluorescence Lifetime, τ:	2.8 (PBS, pH 7.4)

Applications
Abberior STAR 635 particularly well suits the Leica TCS STED system and delivers high-resolution STED images with very low background signal due to its improved water solubility and exceptional brightness. The dye serves as an ideal partner for several 2-color STED packages.

Literature

1. Leica Microsystems recommendations for 2-color applications

2. A.P. Giese, J. Ezan, L. Wang, L. Lasvaux, F. Lembo, C. Mazzocco, E. Richard, J. Reboul, J. Borg, M.W. Kelley, N.Sans, J.Brigande and M. Montcouquiol, "Gipc1 has a dual role in Vangl2 trafficking and hair bundle integrity in the inner ear", Development. 139(20):3775-85 (2012)

3. T. Müller, C.Schumann, A. Kraegeloh, "STED Microscopy and its Applications: New Insights into Cellular Processes on the Nanoscale", *ChemPhysChem* **13**, 1986-2000 (2012).

4. K. Kolmakov et al. "Red-Emitting Rhodamine Dyes for Fluorescence Microscopy and Nanoscopy", *Chem. Eur. J.* **16**, 158 (2010)

5. J. Bückers et al. "Simultaneous multi-lifetime multi-color STED imaging for colocalization analyses", *Opt. Expr.* **19**, 3130 (2011)

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.