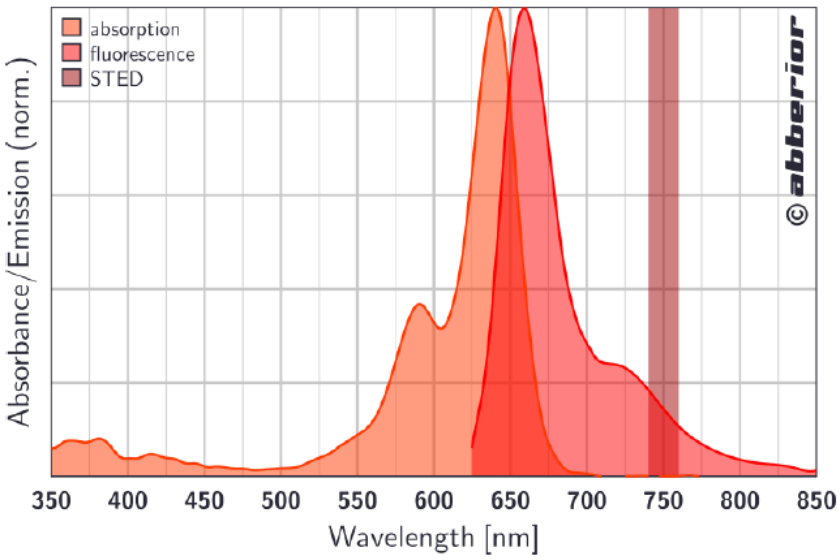
07679 Abberior® STAR 635P NHS ester

Absorption & Fluorescence Spectrum



Key Features

- First phosphorylated dye
- Unmatched, background free STED imaging contrast
- Verified in the Leica STED system

Description

Abberior STAR635P 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.

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 around 750 nm is recommended. Please see reference1 for detailled characteristics.

Best results are obtained with freshly prepared samples.

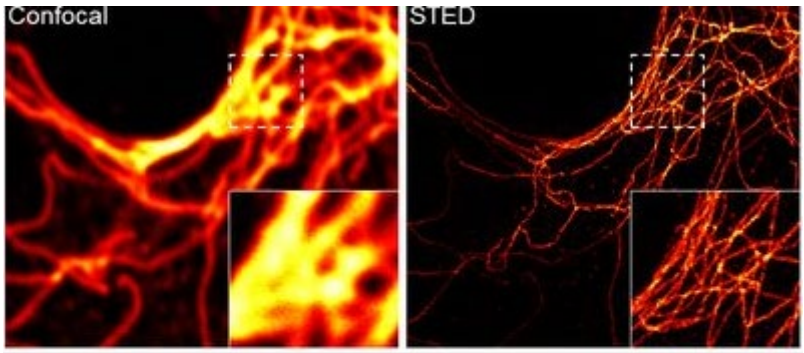
Chemical Data : Abberior® STAR 635P

Chemical Structure:	on request
Molecular Formula:	$C_{47}H_{48}F_4N_4O_{14}P_2$
Molecular Weight:	1030.8 g/mol
Exact Mass:	1030.26 Da
Solubility:	PBS, pH 7.4; water; DMF; DMSO; aq. acetonitrile; MeOH
Polarity:	polar (anionic)
Net Charge (at PH 7.4):	-3
Content:	> 90 %

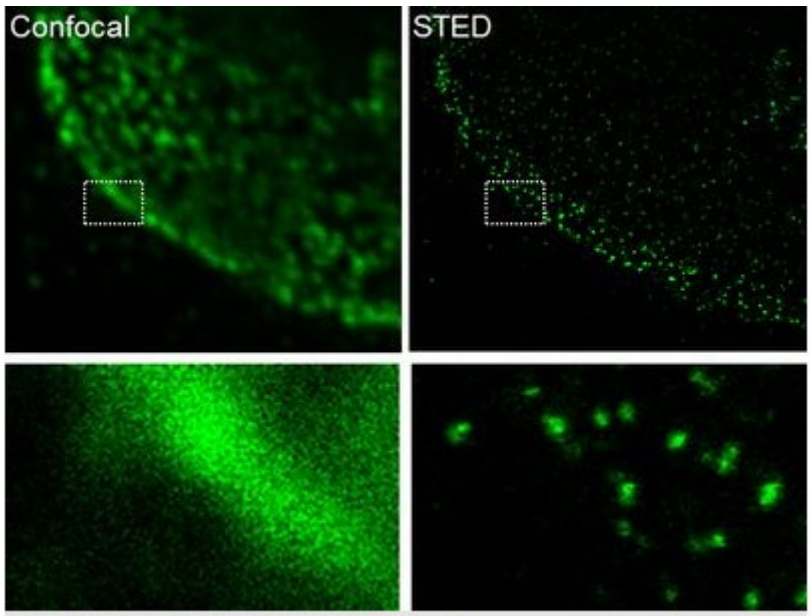
Photophysical Data : Abberior® STAR 635P

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)

Applications



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

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**.

Literature

1. C.A. Wurm et.al. "Novel red fluorophores with superior performance in STED microscopy", *Optical Nanoscopy* (2012) **1**:7
2. Kolmakov et.al. "Red-Emitting Rhodamines with Hydroxylated, Sulfonated, and Phosphorylated Dye Residues and Their Use in Fluorescence Nanoscopy", Chemistry - A European Journal, early view

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.