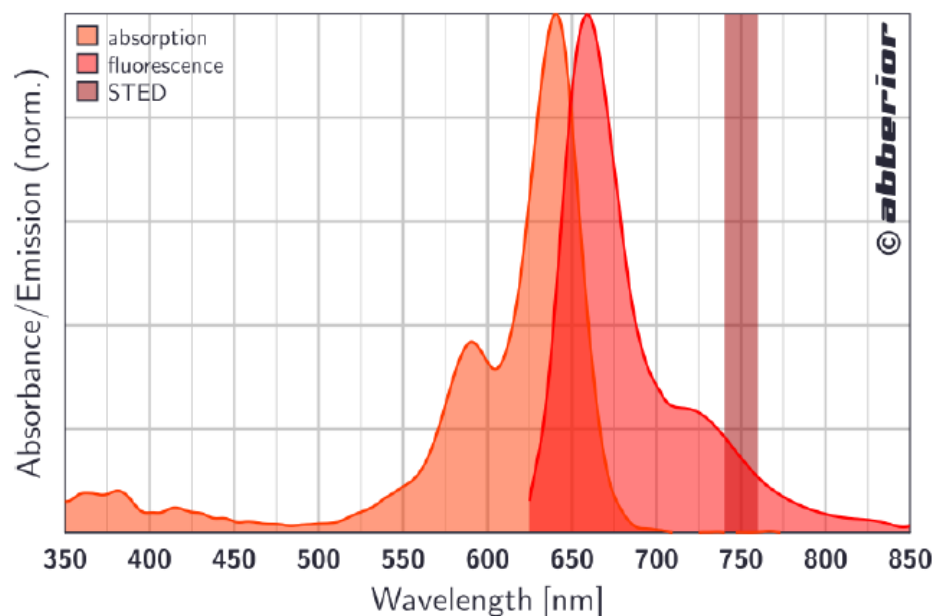


30972 Abberior® STAR 635, phalloidin

Absorption & Fluorescence Spectrum



Key Features

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

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.



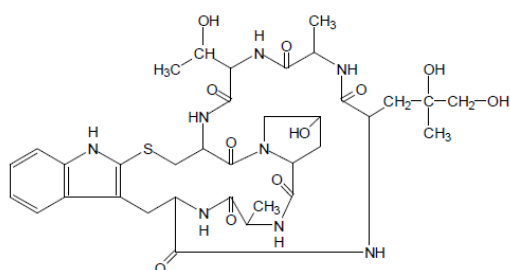
Phalloidin is a fungal toxin isolated from the poisonous mushroom *Amanita phalloides*. Its toxicity is attributed to the ability to bind F actin in liver and muscle cells. As a result of binding phalloidin, actin filaments become strongly stabilized. Phalloidin has been found to bind only to polymeric and oligomeric forms of actin, and not to monomeric actin. The dissociation constant of the actin-phalloidin complex has been determined to be on the order of 3×10^{-8} . Phalloidin differs from amanitin in rapidity of action; at high dose levels, death of mice or rats occurs within 1 or 2 hours. Fluorescent conjugates of phalloidin are used to label actin filaments for histological applications. Some structural features of phalloidin are required for the binding to actin. However, the side chain of amino acid 7 (g-d-dihydroxy-leucine) is accessible for chemical modifications without appreciable loss of affinity for actin.

Properties of Phalloidin:

Molecular formula: $C_{35}H_{48}N_8O_{11}S$

Molecular weight: 788.9 (anhydrous)

Extinction Coefficient: $E^{1\%} = 0.597$ (295 nm in water)



Photophysical Data : Abberior® STAR 635

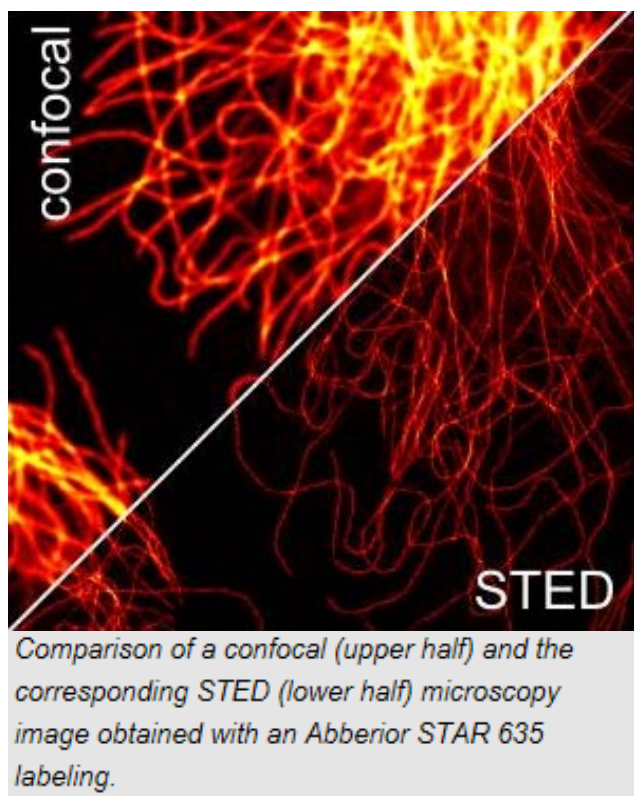
Absorption Maximum, λ_{max} :	639 nm (MeOH), 634 nm (PBS, pH 7.4)
Extinction Coefficient, $\epsilon(\lambda_{max})$:	63,000 $M^{-1}cm^{-1}$ (MeOH),
Correction Factor, $CF_{260} = \epsilon_{260}/\epsilon_{max}$:	0.26
Correction Factor, $CF_{280} = \epsilon_{280}/\epsilon_{max}$:	0.42
Fluorescence Maximum, λ_{fl} :	659 nm (MeOH), 654 nm (PBS, pH 7.4)
Recommended STED Wavelength, λ_{STED} :	740 – 770 nm
Fluorescence Quantum Yield, η :	0.51 (PBS, pH 7.4),
Fluorescence Lifetime, τ :	2.8 (PBS, pH 7.4)

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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

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

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 7. C.A. Wurm et.al. "Novel red fluorophores with superior performance in STED microscopy", *Optical Nanoscopy* (2012) **1**:7
 8. Kolmakov et.al. "Red-Emitting Rhodamines with Hydroxylated, Sulfonated, and Phosphorylated Dye Residues and Their Use in Fluorescence Nanoscopy", *Chem. Eur. J.* 2012, **18**, 12986 –12998 (2013)

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.

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