SIGMA-ALDRICH®

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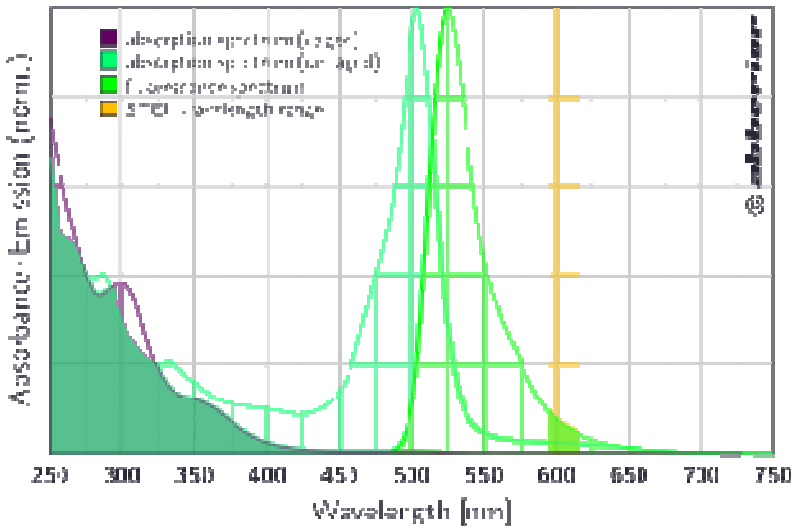
Product Information

92546 Abberior® CAGE 500, maleimide

Description

Abberior CAGE 500 is a masked dye which is initially colorless and nonfluorescent. When illuminated with UV light it undergoes a rapid uncaging reaction and releases a highly fluorescent dye with spectral properties essentially identical to Abberior STAR 512. The dye performs e.g. very well in the Nikon N-Storm, particularly as a **2-color partner** with CAGE552 or FLIP565.



Key Features

- High brightness and photostability
- Ideal for PALM, STORM, GSDIM
- Well suited as 2nd PALM&STORM color

Chemical Data (CAGE 500 NHS Ester)

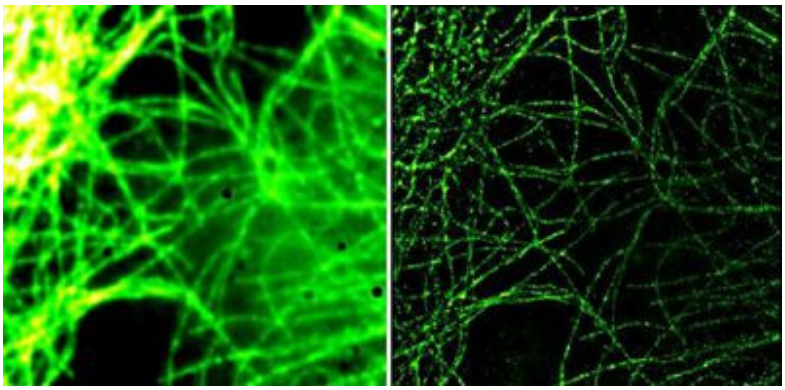
Structure:	on request
Formula:	$C_{30}H_{19}F_6N_5O_8$
Molecular weight:	659.5 g/mol
Exact Mass:	659.Da
Solubility:	DMF, DMSO, acetonitrile, MeOH, THF
Polarity:	unpolar (non-photoactivated) zwitterionic (photoactivated)
Net Charge (at PH 7.4):	0
Purity:	> 90 %

Photophysical Data (CAGE 500 NHS Ester)

Absorption Maximum, λ_{max},nm:	230, 299, 340 (non-activated, PBS, pH 7.4) 511 (photoactivated, PBS, pH 7.4)
Fluorescence Maximum, λ_{fl},nm:	525 (photoactivated, PBS, pH 7.4)
Extinction Coefficient, ε, $M^{-1}cm^{-1}$:	74.000 (non-photoactivated, λ=230 nm, PBS, pH 7.4) 17.000 (non-photoactivated, λ=299 nm, PBS, pH 7.4) 5.100 (non-photoactivated, λ=340 nm, PBS, pH 7.4) 50.000 (photoactivated, PBS, pH 7.4)
Photoactivation wavelength, λ_{fl}, nm:	360-440
Recommended STED Wavelength, λ_{STED}, nm:	595-615
Fluorescence Quantum Yield, η:	0.85 (after photoactivation, PBS, pH 7.4)
Fluorescence Lifetime, τ:	4.1 ns (PBS, pH 7.4)

Applications

Abberior CAGE 500 is designed for single-molecule photoswitching microscopy modes such as **PALM, STORM** and **GSDIM** and, in its uncaged form, also performs well in STED microscopy. Further, after photoactivation, Abberior CAGE markers can be tracked to analyse molecular dynamics such as diffusion, flow directions and velocities. When released in close proximity to other (permanently fluorescent) dye molecules Abberior CAGE 500 can act as a **FRET** donor.



Comparison of a conventional (left) and the corresponding high-resolution microscopy image obtained with an Abberior CAGE 500 labeling.

Literature

V. N. Belov et.al. "Rhodamines NN: A Novel Class of Caged Fluorescent Dyes", *Angew. Chem. Int. Ed.* 49, 3520–3523 (2010)

G. Y. Mitronova et.al. "New Fluorinated Rhodamines for Optical Microscopy and Nanoscopy", *Chem. Eur. J.* **16**, 4477–4488 (2010)

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.