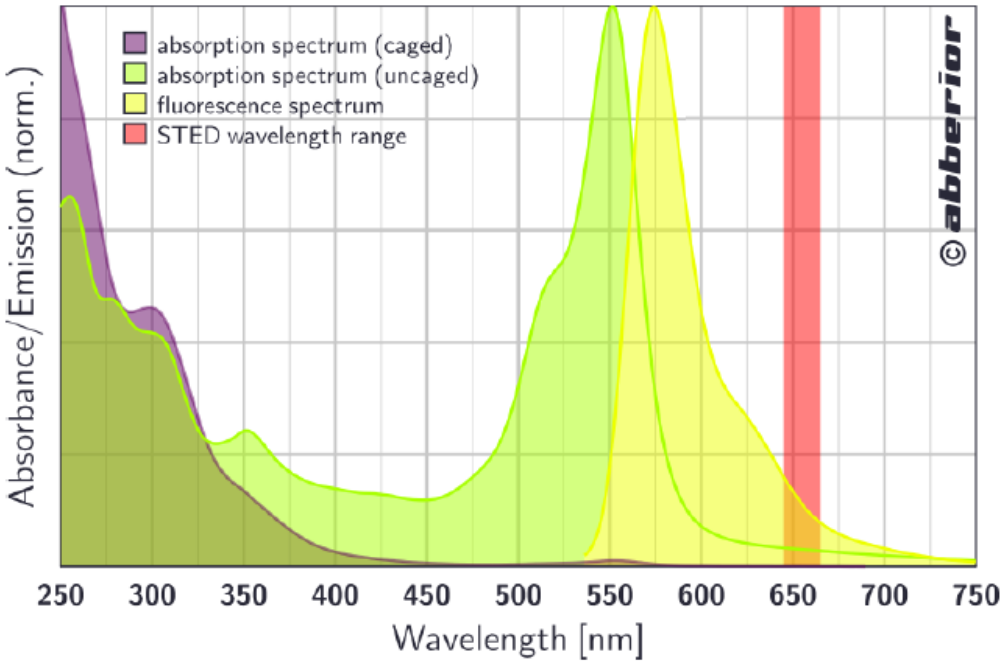
92545 Abberior® CAGE 552, maleimide

Absorption & Fluorescence Spectrum



Key Features

- High brightness & photostability
- Ideal for PALM, STORM, GSDIM
- Vers successfully tested with commercial microscopes

Description

Abberior CAGE 552 is sold as a nonfluorescent and nearly colorless substance which, upon photolysis at 360−440 nm, readily transforms into the deeply red and highly fluorescent dye. It absorbs around 552 nm and emits around 575 nm. After uncaging it can be effectively used as a STED dye at ~660nm.

High brightness and a very good photostabilily are key features of the uncaged form of this dye. It is the smallest and lightest caged rhodamine dye available.

Chemical Data : Abberior® CAGE 552

Structure:	on request
Formula:	$C_{30}H_{25}N_5O_6$
Molecular weight:	551.5 g/mol
Exact Mass:	551.18.Da
Solubility:	DMF, DMSO, acetonitrile, MeOH, THF
Polarity:	unpolar (non-photoactivated) zwitterionic (photoactivated)
Net Charge (at PH 7.4):	0
Purity:	> 90 %

Photophysical Data : Abberior® CAGE 552

Absorption Maximum, λ_{max}:	231, 308, 350 (non-activated, PBS, pH 7.4) 552 (photoactivated, PBS, pH 7.4)
Fluorescence Maximum, λ_{fl}:	574 (photoactivated, PBS, pH 7.4)
Extinction Coefficient, ε, $M^{-1}cm^{-1}$:	66.000 (photoactivated, PBS, pH 7.4)
Photoactivation wavelength, λ_{fl}, nm:	360-440
Recommended STED Wavelength, λ_{STED}, nm:	650-670
Fluorescence Quantum Yield, η:	0.37 (after photoactivation, PBS, pH 7.4)
Fluorescence Lifetime, τ:	-

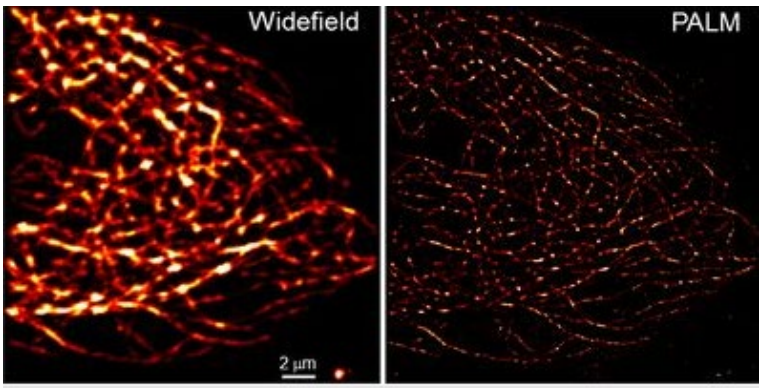
Applications

Abberior CAGE 552 dye is designed for single-molecule photoswitching (SMS) techniques such as **PALM, STORM** and **GSDIM**. In its uncaged variant it is also very suitable for **STED** microscopy. Abberior CAGE 552 can be applied in multilabel imaging based on the simultaneous use of 2 labels with a similar absorption and emission spectra. For that, Abberior CAGE 552 can be combined with the common TMR dye amd imaged only after uncaging. Another field of application of Abberior CAGE 552 are **tracking experiments** in which the fluorescence signal is observed over time after the initial release of the fluorophore.

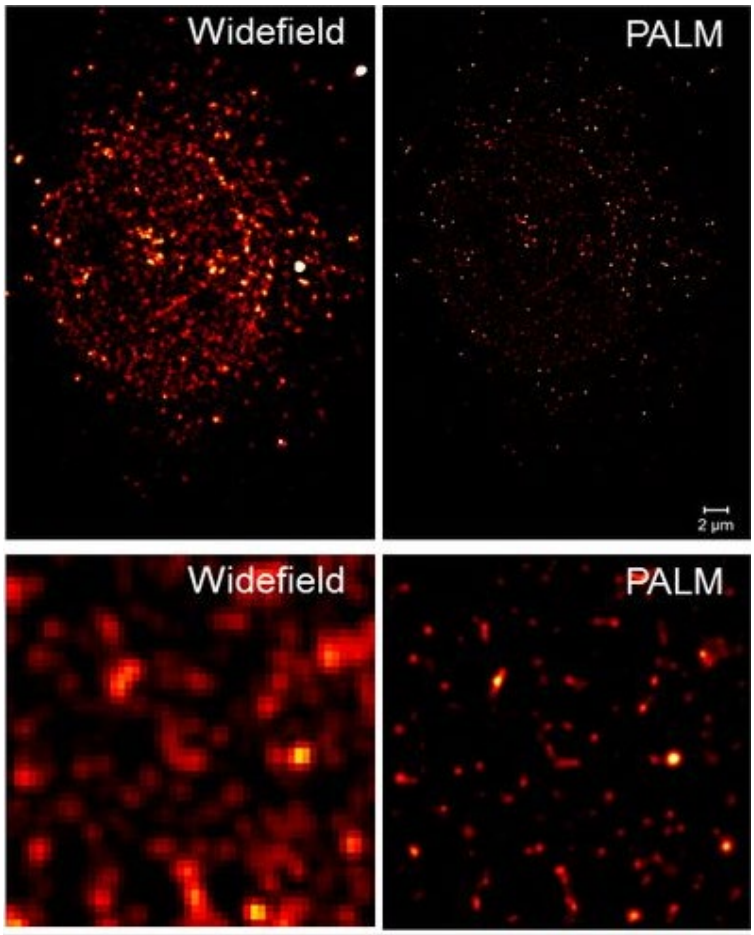
Literature

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

Abberior **CAGE 552** is successfully **tested in** several **commercial superresolution microscopes**. Below is shown a typical image taken with CAGE552 in the Zeiss ELYRA system.



PALM image of tubulin stained with CAGE552 imaged in the Zeiss ELYRA. Image courtesy of Carl Zeiss Microscopy GmbH, Dr. Klaus Weisshart



PALM image of nuclear pore complex protein stained with CAGE552 imaged in the Zeiss ELYRA. Image courtesy of Carl Zeiss Microscopy GmbH, Dr. Klaus Weisshart

Image taken with Abberior CAGE 552 with a Nikon N-STORM microscope at the Nikon Imaging Application Center in Hamburg.

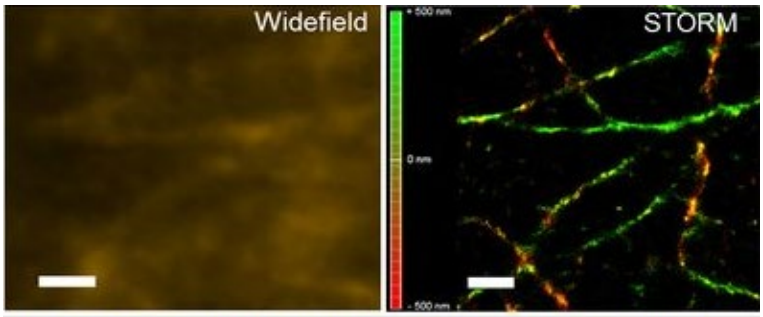
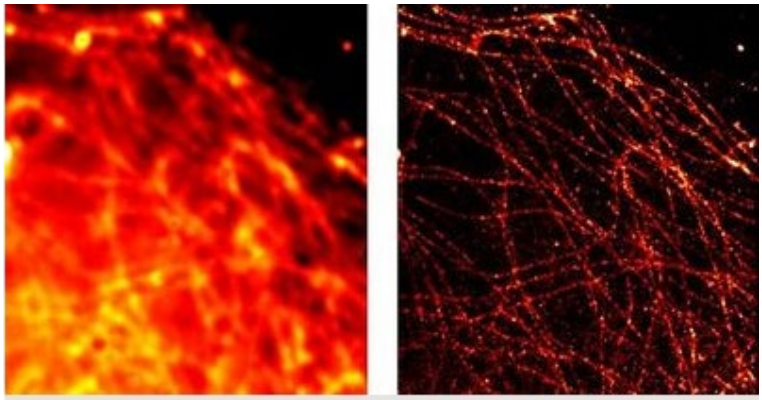


Image of Tubulin labeled with Abberior CAGE 552 taken with a Nikon N-STORM. Note the color coding of the z-Position.

Image taken with a custom-build GSDIM microscope, image courtesy of MPI Biophysical Chemistry, Göttingen:



Comparison of a conventional (left) and the corresponding high-resolution (right) microscopy image obtained with an Abberior CAGE 552 label.

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.