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ATTO-TEC

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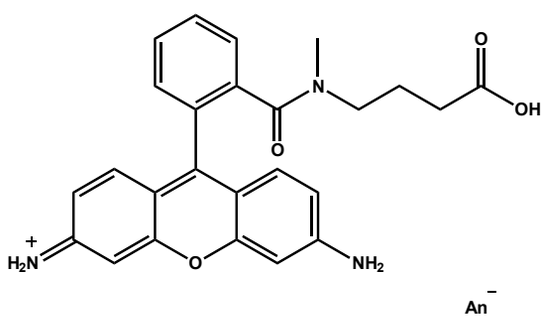
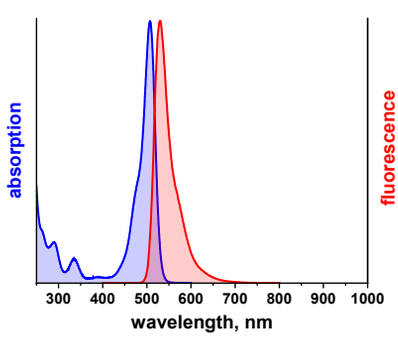
Product Information: ATTO Rho110

ATTO Rho110 is a new fluorescent label that extends the ATTO Rho dye-series. The fluorophore is derived from the well known dye Rhodamin 110 and represents a less hydrophillic variant of ATTO 488. The dye exhibits strong absorption, high fluorescence quantum yield and high thermal and photo-stability. Thus **ATTO Rho110** is highly suitable for single-molecule detection applications and high-resolution microscopy such as PALM, dSTORM, STED etc. Additionally the dye highly qualifies to be applied in oligonucleotide labeling, flow cytometry (FACS), fluorescence in-situ hybridization (FISH) and many more.
The fluorescence is excited most efficiently in the range 480 - 520 nm. A suitable source of excitation is the 488 nm as well as the 514 nm line of the Argon-Ion laser. For details of coupling see our recommended labeling procedure at www.atto-tec.com - Support - User Guides & Protocols.

Optical data of the carboxy derivative (in PBS, pH 7.4):

λ_{abs}	=	507 nm
ε_{max}	=	9.0 x 10^4 M^{-1} cm^{-1}
λ_{fl}	=	531 nm
η_{fl}	=	80 %
τ_{fl}	=	4.1 ns
CF_{260}	=	0.21
CF_{280}	=	0.14





Spectra available in digitized form (excel file) on http://www.atto-tec.com

Modification	MW, g/mol	M^+, g/mol	Order Code Unit (1 mg)	Order Code Unit (5 mg)
carboxy	530	430	AD Rho110-21	AD Rho110-25
NHS-ester	627	527	AD Rho110-31	AD Rho110-35
maleimide	652	552	AD Rho110-41	AD Rho110-45
phalloidin	1313	1199	AD Rho110-81*	AD Rho110-82**
azide	744	630	AD Rho110-101	AD Rho110-105

* 10 nmol **20 nmol

General Information

Storage: The product is shipped solvent-free at ambient temperature. Upon receipt store at -20 °C. To avoid moisture condensation onto the product, vial must be equilibrated to room temperature before opening. When stored properly, protected from moisture and light, ATTO-TEC products are stable for at least three years.

Risk and safety: A material safety data sheet (MSDS) of each derivative can be downloaded from our website at www.atto-tec.com.

Solutions: The product is soluble in polar solvents, e.g. dimethylformamide (DMF) or dimethylsulfoxide (DMSO). However, due to their inherent reactivity, NHS-esters and maleimides must be well protected from OH-containing solvents like ethanol and, in particular, water. Prepare labeling solutions of NHS-esters and maleimides immediately before use by dissolving the vial content in anhydrous and amine-free DMF or DMSO. Depending on the quality of the solvent used, such solutions may be of limited stability.

Dye with **free carboxy group (COOH)** may be used for any kind of spectroscopy. Stock solutions can be prepared with water or aqueous buffer. Due to the high extinction coefficient and its high quantum yield of fluorescence this product is suitable for high-sensitivity detection including single-molecule work. The dye can be activated at the carboxy group for coupling to bio-molecules. For this purpose, dry and amine free DMF or DMSO must be used to dissolve the dye.

The **NHS-ester** of the dye reacts easily with amino-groups of proteins and other bio-molecules. Since the amino-group must be non-protonated to be reactive, the pH of the reaction solution has to be adjusted sufficiently high. As with all NHS-esters unavoidable hydrolysis takes place at high pH and competes with the desired labeling reaction. Therefore the solution has to be buffered carefully. For details see the Labeling Protocol on www.atto-tec.com.

The **maleimide** is suitable for labeling sulfhydryl (thiol) groups of proteins, in particular cystein residues. See Labeling Protocol on www.atto-tec.com.

Phalloidin, a bicyclic heptapeptide, is a very strong binding reagent to actin. Fluorescent labeled phalloidin has become a useful tool to investigate the distribution of F-actin within the cytoskeleton of cells by fluorescence microscopy. To prepare a stock solution of the phalloidin-conjugate it is recommended dissolving the sample in 1 ml of methanol.

The **azide** or **alkyne** modification is used in the Huisgen reaction (“Click Chemistry“).

Further Notes:

- ATTO-TEC products are high-quality reagents intended for research purposes only.
- The use of ATTO-TEC products must be supervised by technically qualified personnel experienced in handling potentially hazardous chemicals. For safety instructions please read the corresponding Material Safety Data Sheet.
- Most ATTO-TEC products and product applications are covered by European and foreign patents.
- Commercial use of ATTO-TEC products is not permitted without written agreement by ATTO-TEC GmbH. Inquiries for licensing may be directed to info@atto-tec.com.