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ATTO-TEC

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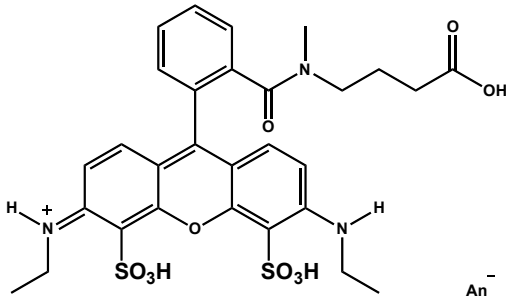
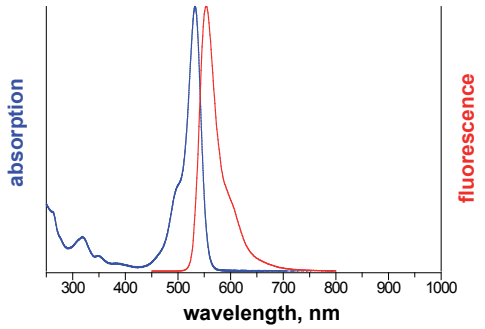
# *Product Information:* ATTO 532

**ATTO 532** is a fluorescent label related to the well-known dye Rhodamine 6G. Characteristic features of the label are strong absorption, high fluorescence quantum yield, high thermal and photo-stability, excellent water solubility. Thus **ATTO 532** 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 flow cytometry (FACS), fluorescence in-situ hybridization (FISH) and many more. The fluorescence is excited most efficiently in the range 515 - 545 nm. A suitable excitation source for **ATTO 532** is the 532 nm output of the frequency-doubled Nd:YAG laser. For details of coupling see our recommended labeling procedure at www.atto-tec.com - Support - Downloads - General Procedures.

## *Optical data of the carboxy derivative (in water):*

| | | |
|---|---|---|
| $\lambda_{abs}$ | = | 532 nm |
| $\varepsilon_{max}$ | = | 1.15 x $10^5$ $M^{-1}$ $cm^{-1}$ |
| $\lambda_{fl}$ | = | 553 nm |
| $\eta_{fl}$ | = | 90 % |
| $\tau_{fl}$ | = | 4.1 ns |
| $CF_{260}$ | = | 0.22 |
| $CF_{280}$ | = | 0.11 |




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) |
|---|---|---|---|---|
| with free COOH | 765 | 646 | AD 532-21 | AD 532-25 |
| NHS-ester | 1081 | 743 | AD 532-31 | AD 532-35 |
| maleimide | 1063 | 768 | AD 532-41 | AD 532-45 |
| biotin | 1357 | 956 | AD 532-71 | AD 532-75 |
| phalloidin | 1530 | 1417 | AD 532-81* | AD 532-82** |
| amine | 914 | 688 | AD 532-91 | AD 532-95 |
| azide | 959 | 846 | AD 532-101 | AD 532-105 |
| iodoacetamide | 969 | 856 | AD 532-111 | AD 532-115 |
| hydrazide | 773 | 660 | AD 532-121 | AD 532-125 |
| alkyne | 796 | 683 | AD 532-141 | AD 532-145 |

* 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), dimethylsulfoxide (DMSO), or acetonitrile. 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 COOH** may be used for any kind of spectroscopy. 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 purposes.

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. 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.

The **biotin** derivative can be used as reagent for binding to proteins like avidin and streptavidin.

**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 **amine** derivative may be used for reactions with activated carboxy-groups like NHS-esters, TFP-esters etc.

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

The **iodoacetamide** derivative reacts, like the maleimide, with a sulfhydryl group forming a thioether bond. It is predominantly used for tagging cystein residues of proteins.

The **hydrazide** derivative is used to modify aldehydes and ketones.

***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.