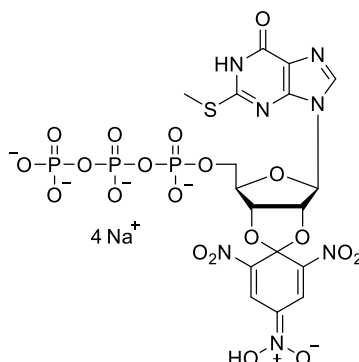


## Technical Information about 2-MeS-TNP-ITP

Update: October 11, 2022 ss



### Abbreviation:

**2-MeS-TNP-ITP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C <sub>17</sub> H <sub>18</sub> N <sub>7</sub> O <sub>20</sub> P <sub>3</sub> S (for free acid)	[pending]	765.4 (for free acid)	$\lambda_{\text{max}}$ 408 nm / $\epsilon$ 26500 / pH 8	M 124

**Name:** 2- Methylthio- 2', 3'- O- (2, 4, 6- trinitrophenyl)inosine- 5'- O- triphosphate, sodium salt

**Description:** 2-MeS-TNP-ITP is an analogue of inosine-5'-O-triphosphate (ITP), in which the hydrogen in position 2 of the purine nucleobase has been replaced by a methylthio group. The 2' and 3' hydroxy groups have been modified with a 2,4,6-trinitrophenyl moiety.

**Properties:** Fluorescent analogue of ATP and GTP, respectively, with  $\lambda_{\text{exc}}$  408 nm and  $\lambda_{\text{em}}$  552 nm, which is supposed to substitute for ATP and GTP in the interaction with various enzymes and proteins. Potential agonist of P2Y purinoceptors and supposed to be inhibitor of soluble guanylate cyclase. It is sensitive to indicators of local environment such as polarity and viscosity, and frequently exhibits a spectral shift and fluorescence enhancement upon binding to a protein.

**Specification:** Aqueous solution of the sodium salt (1 mM). Other salt forms of 2-MeS-TNP-ITP are available upon request. Micromolar quantities are determined by UV at  $\lambda_{\text{max}}$ . When opening the tube please make sure that no liquid is lost within the cap. A short spin-down in a bench centrifuge is recommended before use.

**Purity:** Typical purity is better than 95% (HPLC / UV / 262 nm) at time of quality control and packing. However, actual purity depends on storage and transport conditions. The product is not sterile and has not been tested for endotoxins.

**Stability and Storage:** 2-MeS-TNP-ITP is most stable when stored as aqueous solution in the freezer (-20° Celsius necessary, -70° recommended), however, at ambient temperature the compound slowly starts to decompose. Thus, in order to maintain its original high quality it is recommended to allow thawing only before using the product. If you will not use up the vial with one application, please aliquot the contents of the vial in order to avoid repeated freeze/thaw cycles for the rest. When making such aliquots be sure to operate quickly and to freeze the vial again as soon as possible. Exposure to bright light should be avoided. For stability reasons it is essential that the pH value of the product solution never drops below 7.5 which can be achieved by addition of a suitable buffer.

**Toxicity and Safety:** Since triphosphates have multiple tasks in every organism, it is very likely that triphosphate analogues will interfere with many cell regulation processes *in vivo*. However, due to the rather small quantities to work with, no health hazards have been reported. Nevertheless, please keep in mind, that the *in vivo* properties of this compound are not sufficiently characterized up to now. Avoid skin contact or ingestion and allow only trained personnel to handle the product. Our products are designed, developed and sold for research purposes only! They are intended for *in vitro* and nonhuman *in vivo* laboratory applications. Any other use requires approval of health authorities.

**Not for drug, household or related uses!**

**Selected References for 2-MeS-TNP-ITP:** 2-MeS-TNP-ITP is a new product and there are currently no corresponding references available.

**Selected References for the Related Compound TNP-GTP (Cat. No. T 026):**

Hiratsuka, T., *J. Biol. Chem.*, **260**, 4784 - 4790 (1985): "A Chromophoric and Fluorescent Analog of GTP, 2',3'-O-(2,4,6-trinitrocyclohexadienylidene)-GTP, as a Spectroscopic Probe for the GTP Inhibitory Site of Liver Glutamate Dehydrogenase"

**Selected References for Various TNP-NTPs:**

Suryanarayana, S.; Göttle, M.; Hübner, M.; Gille, A.; Mou, T. C.; Sprang, S. R.; Richter, M.; Seifert, R., *J. Pharmacol. Exp. Ther.*, **330**, 687 - 695 (2009): "Differential Inhibition of Various Adenylyl Cyclase Isoforms and Soluble Guanylyl Cyclase by 2',3'-O-(2,4,6-trinitrophenyl)-Substituted Nucleoside 5'-triphosphates"

**Selected References for 2-MeS-ATP (Cat. No. M 021):**

Ruiz-Stewart, I.; Kazerounian, S.; Pitari, G.M.; Schulz, S.; Waldman, S.A., *Eur. J. Biochem.*, **269**, 2186 - 2193 (2002): "Soluble Guanylate Cyclase is Allosterically Inhibited by Direct Interaction with 2-Substituted Adenine Nucleotides"