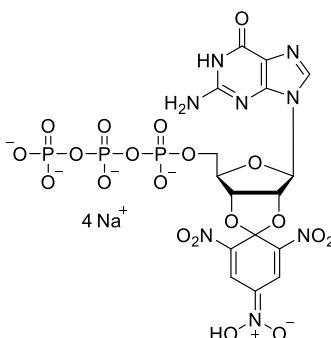


## Technical Information about TNP-GTP

### Fluorescent analogue of GTP

Update: June 21, 2023 AI



#### Abbreviation:

**TNP-GTP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C <sub>16</sub> H <sub>17</sub> N <sub>8</sub> O <sub>20</sub> P <sub>3</sub> (free acid)	[612837-26-0]	734.3 (free acid)	λ <sub>max</sub> 408 nm / ε 26500 / pH 8	T 026

**Name:** 2', 3'- O- (2, 4, 6- Trinitrophenyl)guanosine- 5'- O- triphosphate, sodium salt

**Description:** TNP-GTP is an analogue of GTP in which the 2' and 3' hydroxy groups have been modified with a 2,4,6-trinitrophenyl moiety.

**Properties:** TNP-GTP is a fluorescent analogue of GTP with λ<sub>exc</sub> 408 nm and λ<sub>em</sub> 552 nm, which can substitute for GTP in the interaction with various enzymes and proteins. 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. Furthermore, TNP-GTP was reported to be an inhibitor of soluble guanylyl cyclase (sGC).

**Specification:** Aqueous solution of the sodium salt (10 mM). Other salt forms of TNP-GTP are available upon request. Micromolar quantities are determined by UV at λ<sub>max</sub>. 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 analysis is better than 95% (HPLC / UV / 252 nm). The product is not sterile and has not been tested for endotoxins.

**Stability and Storage:** TNP-GTP is relatively 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 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 GTP has multiple tasks in every organism, it is very likely that GTP 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 TNP-GTP:

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"

Hiratsuka, T., *Eur. J. Biochem.*, **270**, 3479 - 3485 (2003): "Fluorescent and Colored Trinitrophenylated Analogs of ATP and GTP"

Virginio, C.; Robertson, G.; Surprenant, A.; North, R.A., *Mol. Pharmacol.*, **53**, 969 - 973 (1998): "Trinitrophenyl-substituted Nucleotides are Potent Antagonists Selective for P2X<sub>1</sub>, P2X<sub>3</sub>, and Heteromeric P2X<sub>2/3</sub> Receptors"

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"