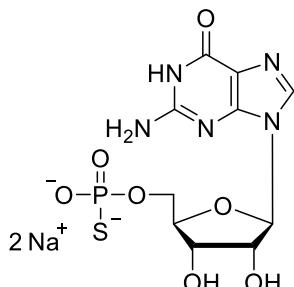


Technical Information about Guanosine- 5'- O- monophosphorothioate

Update: October 15, 2018 HJ



Abbreviation:

5'-GMPS

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₁₀ H ₁₄ N ₅ O ₇ PS (free acid)	[76310-16-2]	379.3 (free acid)	λ _{max} 252 nm / ε 14300 / pH 7	G 018

Name: Guanosine- 5'- O- monophosphorothioate

Description: 5'-GMPS is an analogue of guanosine- 5'- O- monophosphate (5'-GMP) in which one oxygen in the phosphate moiety is replaced by sulfur.

Properties: 5'-GMPS is a substrate, competitive inhibitor or regulator of enzymes that interact with 5'-GMP. It can be linked to structures carrying SH-groups via disulfide bonds and is also suitable as a primer of RNA synthesis by T7 RNA polymerase.

Specification: Lyophilized or crystallized sodium salt. Other salt forms of 5'-GMPS are available upon request. Please keep in mind that equal concentrations of 5'-GMPS can appear very different in volume. The compound can even contract to small volume droplets. Normally the product is located in the conical bottom of the tube. Micromolar quantities are determined by UV at λ_{max}.

Purity: Typical analysis is better than 97% (HPLC / UV / 252 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: 5'-GMPS has good solubility in water (> 150 mM) or buffer. Please rinse tube walls carefully and preferably use ultrasonic or vortex to achieve total and uniform mixing. When opening the tube please make sure that no substance is lost within the cap.

Stability and Storage: 5'-GMPS is moderately stable and does not need special care during handling or shipment. Nevertheless, we recommend that the compound should be stored in the freezer, for longer storage periods preferably in freeze-dried form.

Toxicity and Safety: Since nucleoside monophosphates have multiple tasks in every organism, it is not unlikely that 5'-GMP 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.

Nor for drug, household or related uses!

Selected References for 5'-GMPS:

Mhlanga, M.M.; Vargas, D.Y.; Fung, C.W.; Kramer, F.R.; Tyagi, S., *Nucleic Acids Res.*, **33**, 1902 - 1912 (2005): "tRNA-linked Molecular Beacons for Imaging mRNAs in the Cytoplasm of Living Cells"

Wu, C.-W.; Eder, P.S.; Gopalan, V.; Behrman, E.J., *Bioconjugate Chem.*, **12**, 842 - 844 (2001): "Kinetics of Coupling Reactions That Generate Monothiophosphate Disulfides: Implications for Modification of RNAs"



Macosko, J.C.; Pio, M.S.; Tinoco, I.; Shin, Y.K., *RNA*, **5**, 1158 - 1166 (1999): "A Novel 5' Displacement Spin-labeling Technique for Electron Paramagnetic Resonance Spectroscopy of RNA"

Burgin, A.B.; Pace, N.R., *EMBO J.*, **9**, 4111 - 4118 (1990): "Mapping the Active Site of Ribonuclease P RNA Using a Substrate Containing a Photoaffinity Agent"