Technical Information about UTP-γ-S

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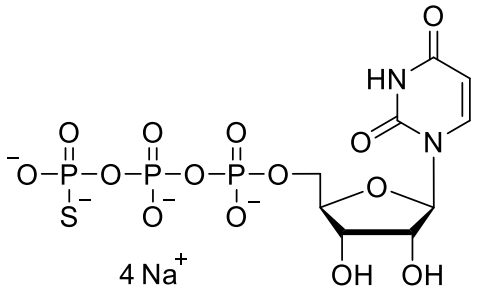

Abbreviation: **UTP-γ-S**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_9H_{15}N_2O_{14}P_3S$ (free acid)	[79049-97-1]	500.2 (free acid)	λ_{max} 262 nm / ε 10000 / pH 8	U 010

Name: Uridine- 5'- O- (3- thiotriphosphate)

Description: UTP-γ-S is an analogue of uridine-5'-O-triphosphate (UTP) in which one of the non-bridging oxygens at the γ-phosphate is replaced by sulphur.

Properties: UTP-γ-S is a potent agonist of the $P2Y_2$ and $P2Y_4$ receptors with increased metabolic stability. It is also useful for modification with SH-reactive reporters or for connection to structures with SH-groups via a disulfide bond.

Specification: Aqueous solution of the sodium salt (10 mM). Other salt forms of UTP-γ-S are available upon request. Micromolar quantities are determined by UV at λ_{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: UTP-γ-S is most stable when stored as aqueous solution in the freezer (-20° Celsius necessary, -80° 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. For stability reasons it is essential that the pH value of the product solution never drops below 8 which can be achieved by addition of a suitable buffer (pH 8 - 9).

Toxicity and Safety: Since triphosphates have multiple tasks in every organism, it is very likely that UTP 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 UTP-γ-S:

Wang, J.L.; Guo, J.-X.; Zhang, Q.-Y.; Wu, J.J.-Q.; Seifert, R.; Lushington, G.H., *Bioorg. Med. Chem.*, **15**, 2993 - 3002 (2007): "A Conformational Transition in the Adenylyl Cyclase Catalytic Site Yields Different Binding Modes for Ribosyl-Modified and Unmodified Nucleotide Inhibitors"

Wihlborg, A.-K.; Balogh, J.; Wang, L.; Borna, C.; Dou, Y.; Joshi, B.V.; Lazarowski, E.; Jacobson, K.A.; Arner, A.; Erlinge, D., *Circ. Res.*, **98**, 970 - 976 (2006): "Positive Inotropic Effects by Uridine Triphosphate (UTP) and Uridine Diphosphate (UDP) via $P2Y_2$ and $P2Y_6$ Receptors on Cardiomyocytes and Release of UTP in Man During Myocardial Infarction"

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Malmsjö, M.; Hou, M.; Pendergast, W.; Erlinge, D.; Edvinsson, L., *Eur. J. Pharmacol.*, **458**, 305 - 311 (2003): "The Stable Pyrimidines UDPβS and UTPγS Discriminate between Contractile Cerebrovascular P2 Receptors"

Malmsjö, M.; Hou, M.; Harden, T.K.; Pendergast, W.; Pantev, E.; Edvinsson, L.; Erlinge, D., *J. Pharmacol. Exp. Ther.*, **293**, 755 - 760 (2000): "Characterization of Contractile P2 Receptors in Human Coronary Arteries by Use of the Stable Pyrimidines Uridine 5'-O-Thiodiphosphate and Uridine 5'-O-3-Thiotriphosphate"

Lazarowski, E.R.; Watt, W.C.; Stutts, M.J.; Brown, H.A.; Boucher, R.C.; Harden, T.K., *Br. J. Pharmacol.*, **117**, 203 - 209 (1996): "Enzymatic Synthesis of UTPγS, a Potent Hydrolysis Resistant Agonist of P_{2U}-Purinoceptors"

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