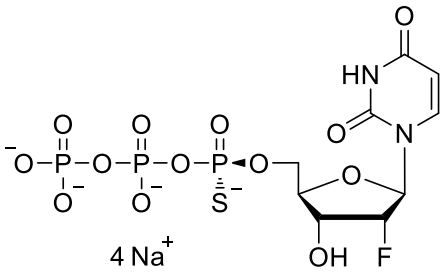
BIOLOG - LIFE SCIENCE INSTITUTE -

Technical Information about Sp-2'-F-dUTP-α-S

Update: February 23, 2023ss



Abbreviation: **Sp-2'-F-dUTP-α-S**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_9H_{14}FN_2O_{13}P_3S$ (free acid)	[pending]	502.2 (free acid)	λ_{max} 262 nm / ε 10000 / pH 7	D 235

Name: 2'- Deoxy- 2'- fluorouridine- 5'- O- (1- thiotriphosphate), Sp- isomer (Sp-2'-F-dUTP-α-S), sodium salt

Description: Sp-2'-F-dUTP-α-S is an analogue of UTP and Sp-UTP-α-S, respectively. The 2'-hydroxyl group of UTP is replaced by a fluorine atom and one of the non-bridging oxygens in the S position of the α-phosphate is replaced by sulfur. The suffix "p" indicates that R/S nomenclature refers to phosphorus. The corresponding Rp-isomer is offered as well (Cat. No. D 234).

Properties:

- Increased metabolic stability compared to the parent compounds 2'-F-dUTP and UTP/dUTP, respectively,
- Useful for modulation of dUTP-responsive receptors and determination of their stereospecificity,
- May be accepted by DNA polymerases for incorporation of phosphorothioate into DNA.

Specification: Aqueous solution of the sodium salt (10 mM). Other salt forms of Sp-2'-F-dUTP-α-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: Sp-2'-F-dUTP-α-S 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.

Toxicity and Safety: Since nucleoside triphosphates have important 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!

Reference for Sp-2'-F-dUTP-α-S: Sp-2'-F-dUTP-α-S is a new product and there are currently no corresponding references available.

BIOLOG Life Science Institute, Bremen, Germany Phone: 49 (0) 421 591355 Fax: 49 (0) 421 5979713 e-mail: service@biolog.de

Selected References for the Related Compound Sp-dUTP-α-S (Cat. No. D 049):

Jacobson, K. A.; Costanzi, S.; Ivanov, A.A.; Tchilibon, S.; Besada, P.; Gao, Z.-G.; Maddileti, S.; Harden, T.K., *Biochem. Pharmacol.*, **71**, 540 - 549 (2006): "Structure Activity and Molecular Modeling Analyses of Ribose- and Base-modified Uridine 5'-triphosphate Analogues at the Human P2Y2 and P2Y4 Receptors"

Bergman, A.-C.; Nyman, P.O.; Larsson, G., *FEBS Lett.*, **441**, 327 - 330 (1998): "Kinetic Properties and Stereospecificity of the Monomeric dUTPase from Herpes Simplex Virus Type I"

Selected References for Related Compound 2'-F-dUTP:

Richardson, F.C.; Kuchta, R.D.; Mazurkiewicz, A.; Richardson, K.A., *Biochem. Pharmacol.*, **59**, 1045 - 1052 (2000): "Polymerization of 2'-Fluoro- and 2'-O-Methyl-dNTPs by Human DNA Polymerase Alpha, Polymerase Gamma, and Primase"

Zhu, B.; Hernandez, A.; Tan, M.; Wollenhaupt, J.; Tabor, S.; Richardson, C.C., *Nucleic Acids Res.*, **43**, e94 (2015): "Synthesis of 2′-Fluoro RNA by Syn5 RNA Polymerase"

Ono, T.; Scalf, M.; Smith, L.M.; *Nucleic Acids Res.*, **25**, 4581 - 4588 (1997): "2′-Fluoro Modified Nucleic Acids: Polymerase-Directed Synthesis, Properties and Stability to Analysis by Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry"

BIOLOG Life Science Institute, Bremen, Germany Phone: 49 (0) 421 591355 Fax: 49 (0) 421 5979713 e-mail: service@biolog.de