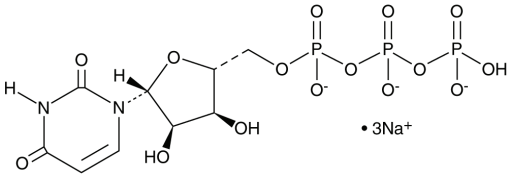
PRODUCT INFORMATION

UTP (sodium salt)

Item No. 9003530

CAS Registry No.:	19817-92-6
Formal Name:	uridine 5′-(tetrahydrogen triphosphate), trisodium salt
Synonyms:	NSC 20260, Uridine 5'-triphosphate
MF:	$C_9H_{12}N_2O_{15}P_3$ • 3Na
FW:	550.1
Purity:	≥95%
UV/Vis.:	λ_{max}: 262 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

UTP (sodium salt) is supplied as a crystalline solid. Aqueous solutions of UTP (sodium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of UTP (sodium salt) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

UTP is a nucleotide and dual agonist of purinergic $P2Y_2$ and $P2Y_4$ receptors (EC_{50}s = 55 and 80 nM, respectively, for stimulation of phospholipase C in 1321N1 cells expressing human receptors).[1,2] It is selective for $P2Y_2$ and $P2Y_4$ receptors over $P2Y_6$ receptors (EC_{50} = >10,000 nM).[2] UTP stimulates proliferation of PANC-1 cells (EC_{50} = 13.1 µM), an effect that can be prevented by siRNA against the $P2Y_2$ receptor.[1] It induces vasoconstriction in perfused isolated canine epicardial coronary artery in a concentration-dependent manner.[3] UTP is formed from uridine monophosphate (UMP) by two sequential phosphorylations and can be converted to cytidine 5'-triphosphate (CTP; Item No. 18147).[4] It also reacts with glucose-1-phosphate (Item No. 30566) to form UDP-glucose (Item No. 15602), a precursor in the biosynthesis of glycogen.[5]

References

1. Choi, J.H., Ji, Y.G., and Lee, D.H. Uridine triphosphate increases proliferation of human cancerous pancreatic duct epithelial cells by activating P2Y2 receptor. *Pancreas* **42(4)**, 680-686 (2013).
2. Maruoka, H., Jayasekara, M.P.S., Barrett, M.O., *et al.* Pyrimidine nucleotides with 4-alkyloxyimino and terminal tetraphosphate δ-ester modifications as selective agonists of the $P2Y_4$ receptor. *J. Med. Chem.* **54(12)**, 4018-4033 (2011).
3. Matsumoto, T., Nakane, T., and Chiba, S. UTP induces vascular responses in the isolated and perfused canine epicardial coronary artery via UTP-preferring P2Y receptors. *Br. J. Pharmacol.* **122(8)**, 1625-1632 (1997).
4. Berg, J.M., Tymoczko, J.L., and Stryer, L. In de novo synthesis, the pyrimidine ring is assembled from bicarbonate, aspartate, and glutamine. *Biochemistry*. Gatto, G., editor, 5th edition, *W. H. Freeman* (2002).
5. Berg, J.M., Tymoczko, J.L., and Stryer, L. Glycogen is synthesized and degraded by different pathways. *Biochemistry*. Gatto, G., editor, 5th edition, *W. H. Freeman* (2002).

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