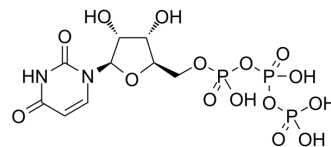


Uridine triphosphate

Cat. No.:	HY-107372		
CAS No.:	63-39-8		
Molecular Formula:	C ₉ H ₁₅ N ₂ O ₁₅ P ₃		
Molecular Weight:	484.14		
Target:	Endogenous Metabolite		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H₂O : ≥ 150 mg/mL (309.83 mM)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.0655 mL	10.3276 mL	20.6552 mL
	5 mM	0.4131 mL	2.0655 mL	4.1310 mL
	10 mM	0.2066 mL	1.0328 mL	2.0655 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description	Uridine triphosphate (UTP; Uridine 5'-triphosphate) is a nucleotide that regulates the functions of the pancreas in endocrine and exocrine secretion, proliferation, channels, transporters, and intracellular signaling under normal and disease states.
IC₅₀ & Target	Human Endogenous Metabolite
In Vitro	Uridine triphosphate treatment induces Schwannoma cell migration through activation of P2Y2 receptors and through the increase of extracellular matrix metalloproteinase-2 (MMP-2) activation and expression ^[1] . Uridine triphosphate-induced proliferation is mediated by protein kinase D, Src-family tyrosine kinase, Ca/calmodulin-dependent protein kinase II, phosphatidylinositol 3-kinase (PI3K), Akt, and phospholipase D. Uridine triphosphate increases phosphorylation of Akt through protein kinase C, Src-family tyrosine kinase, Ca/calmodulin-dependent protein kinase II, and PI3K ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Uridine triphosphate reduces mitochondrial calcium levels following hypoxia. Early or late uridine triphosphate preconditioning is effective to reduce infarct size and superior myocardial function ^[3] . Uridine triphosphate treatment

increases the number of monocytes and macrophages infiltrating the pouch and up-regulates the gene expression of IL-4 and IL-13 in the regional lymph nodes^[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[2]

Pancreatic duct epithelial cells are treated with (0.1 μ M-1 mM) uridine triphosphate. BrdU is added after different time points (12-24 hours). Proliferation is measured using the BrdU incorporation assay in triplicate^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Administration ^[3]

Rats: Four main groups are tested: (1) sham without LAD ligation, (2) LAD ligation, (3) injected with UTP (0.44 μ g/kg i.v.) 30 min before MI, (4) UTP injection (4.4 μ g/kg i.v.) 24 h prior to MI. Several different concentrations of UTP are tested (0.044–44.4 μ g/kg). Left ventricular systolic pressure (LVSP), end-diastolic pressure (LVEDP) and heart rates are monitored before, after UTP treatment and post MI^[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Anal Chim Acta. 18 October 2021, 339180.

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REFERENCES

- [1]. Lamarca A, et al. Uridine 5'-triphosphate promotes in vitro Schwannoma cell migration through matrix metalloproteinase-2 activation. PLoS One. 2014 Jun 6;9(6):e98998.
- [2]. Choi JH, et al. Uridine triphosphate increases proliferation of human cancerous pancreatic duct epithelial cells by activating P2Y2 receptor. Pancreas. 2013 May;42(4):680-6.
- [3]. Yitzhaki S, et al. Uridine-5'-triphosphate (UTP) reduces infarct size and improves rat heart function aftermyocardial infarct. Biochem Pharmacol. 2006 Oct 16;72(8):949-55.
- [4]. Iwaki Y, et al. Enhancement of antibody production against rabies virus by uridine 5'-triphosphate in mice. Microbes Infect. 2014 Mar;16(3):196-202.

Caution: Product has not been fully validated for medical applications. For research use only.

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