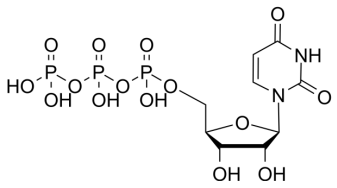
Uridine triphosphate

Cat. No.:	HY-107372
CAS No.:	63-39-8
Molecular Formula:	$C_9H_{15}N_2O_{15}P_3$
Molecular Weight:	484.14
Target:	Endogenous Metabolite; DNA/RNA Synthesis; P2Y Receptor
Pathway:	Metabolic Enzyme/Protease; Cell Cycle/DNA Damage; GPCR/G Protein
Storage:	Powder -20°C 3 years 4°C 2 years * The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 150 mg/mL (309.83 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	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.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (206.55 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Uridine triphosphate (UTP) is a pyrimidine nucleoside triphosphate that is used as a substrate to synthesize RNA or as an energy source in metabolic reactions. Uridine triphosphate activates membrane-bound P2Y2 receptors[1][2].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

Uridine triphosphate (UTP) (0, 10, 100, 250, 500, and 1000 μM; 2, 4, 6, 8, 10, and 12 h) enhances RT4-D6P2T cells migration and wound repair. Uridine triphosphate induces Schwannoma cell migration through activation of P2Y2 receptors and through the increase of extracellular MMP-2 activation and expression[2].

Uridine triphosphate (UTP) evokes MAPK phosphorylation in a biphasic pattern MAPK phosphorylation, with an early transient phosphorylation 5 min after treatment, and a late and sustained phosphorylation that appeared at 6 h and lasted up to 24 h[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[2]

Cell Line:	RT4-D6P2T cells
Concentration:	250 μM
Incubation Time:	5 min, 45 min, 2 h, 6 h, 12 h, 24 h, 48 h
Result:	Induces biphasic MAPK phosphorylation.

In Vivo

Uridine triphosphate (UTP) (0.44-4.4 μg/kg; i.v.; once) reduces infarct size and improves rat heart function after myocardial infarct[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Wistar rats (250-300 g; 2-3 months) with myocardial infarction (MI)[3]
Dosage:	0.44 μg/kg 30 min before MI, and 4.4 μg/kg i.v. 24 h prior to MI.
Administration:	i.v.; once
Result:	Reduced infarct size and improves rat heart function after myocardial infarct.

CUSTOMER VALIDATION

- Anal Chim Acta. 18 October 2021, 339180.
- Life Sci. 2023 Jun 27;121896.

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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.

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