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产品名称: 尿苷 5'-三磷酸酯

产品别名: Uridine triphosphate; 尿苷三磷酸; UTP; Uridine 5'-triphosphate

生物活性:					
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.				
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].				
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].				
Solvent&Solubility	In Vitro: H₂O : ≥ 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
	*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液; 一旦配成溶液, 请分装保存, 避免反复冻融造成的产品失效。 储备液的保存方式和期限: -80℃, 6 months; -20℃, 1 month。 -80℃ 储存时, 请在 6 个月内使用, -20℃ 储存时, 请在 1 个月内使用。				
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.				
实验参考:		Pancreatic duct epithelial cells are treated with (0.1 μM-1 mM) uridine triphosphate. BrdU is added			



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Cell Assay	after different time points (12-24 hours). Proliferation is measured using the BrdU incorporation assay in triplicate[2].
Animal Administration	Rats: Four main groups are tested: (1) sham without LAD ligation, (2) LAD ligation, (3) injected with UTP (0.44 µg/kg i.v.) 30 min before MI, (4) UTP injection (4.4 µg/kg i.v.) 24 h prior to MI. Several different concentrations of UTP are tested (0.044–44.4 µg/kg). Left ventricular systolic pressure (LVSP), end-diastolic pressure (LVEDP) and heart rates are monitored before, after UTP treatment and post MI[3].
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 after myocardial 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.

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