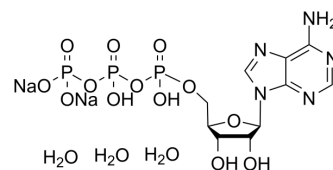


ATP disodium trihydrate

Cat. No.:	HY-B2176A
CAS No.:	51963-61-2
Molecular Formula:	C ₁₀ H ₂₀ N ₅ Na ₂ O ₁₆ P ₃
Molecular Weight:	605.19
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	-20°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 250 mg/mL (413.09 mM; Need ultrasonic)					
	DMSO : 1 mg/mL (1.65 mM; ultrasonic and warming and heat to 80°C)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		1.6524 mL	8.2619 mL	16.5237 mL
5 mM			0.3305 mL	1.6524 mL	3.3047 mL	
	10 mM		0.1652 mL	0.8262 mL	1.6524 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: PBS Solubility: 50 mg/mL (82.62 mM); Clear solution; Need ultrasonic and warming and heat to 60°C					

BIOLOGICAL ACTIVITY

Description	ATP disodium trihydrate (Adenosine 5'-triphosphate disodium trihydrate) is a central component of energy storage and metabolism in vivo. ATP disodium trihydrate provides the metabolic energy to drive metabolic pumps and serves as a coenzyme in cells. ATP disodium trihydrate is an important endogenous signaling molecule in immunity and inflammation ^[1] [2].	
IC₅₀ & Target	Human Endogenous Metabolite	Human Endogenous Metabolite
In Vitro	ATP disodium trihydrate (5 mM; 1 hour) co-treatment with LPS (1 µg/mL) has a synergistic effect on the activation of the NLRP3 inflammasome in HGFs ^[3] . ATP disodium trihydrate (2 mM; 0.5-24 hours) induces secretion of IL-1β, KC and MIP-2 from BMDMs in a caspase-1 activation-dependent manner ^[4] . ATP disodium trihydrate promotes neutrophil chemotaxis in vitro ^[4] .	

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

In Vivo

ATP disodium trihydrate (50 mg/kg; i.p.) protects mice against bacterial infection in vivo^[4].
ATP disodium trihydrate induces the secretion of IL-1 β , KC and MIP-2 and neutrophils recruitment in vivo^[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Four-week-old Kunming mice (18-22 g) ^[4]
Dosage:	50 mg/kg
Administration:	Intraperitoneal injection, before bacterial (E. coli) challenge
Result:	Protected mice from bacterial infection.

CUSTOMER VALIDATION

- Protein Cell. 2021 Oct 22;1-21.
- Mol Cell. 2023 May 19;S1097-2765(23)00324-6.
- Mol Cell. 2022 Apr 14;S1097-2765(22)00290-8.
- Crit Care. 2021 Oct 12;25(1):356.
- Biosens Bioelectron. 2021 Apr 15;178:113025.

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- [1]. Swennen EL, et al. Immunoregulatory effects of adenosine 5'-triphosphate on cytokine release from stimulated whole blood. Eur J Immunol. 2005 Mar;35(3):852-8.
- [2]. M J L Bours, et al. Adenosine 5'-triphosphate and adenosine as endogenous signaling molecules in immunity and inflammation. Pharmacol Ther. 2006 Nov;112(2):358-404.
- [3]. Shuo Xu, et al. Doxycycline inhibits NACHT Leucine-rich repeat Protein 3 inflammasome activation and interleukin-1 β production induced by Porphyromonas gingivalis-lipopolysaccharide and adenosine triphosphate in human gingival fibroblasts. Arch Oral Biol. 2019 Nov;107:104514.
- [4]. Yang Xiang, et al. Adenosine-5'-Triphosphate (ATP) Protects Mice against Bacterial Infection by Activation of the NLRP3 Inflammasome. PLoS One. 2013; 8(5): e63759.

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

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