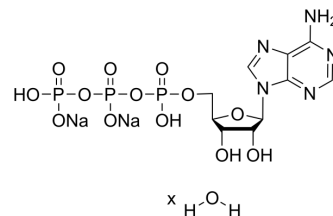


ATP disodium salt hydrate

Cat. No.:	HY-W010735
CAS No.:	34369-07-8
Molecular Formula:	C ₁₀ H ₁₄ N ₅ O ₁₃ Na ₂ P ₃ ·xH ₂ O
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	4°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 : 100 mg/mL (Need ultrasonic)
In Vivo	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (Infinity mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description	ATP disodium salt hydrate (Adenosine 5'-triphosphatedisodium salt hydrate) is a central component of energy storage and metabolism in vivo, provides the metabolic energy to drive metabolic pumps and serves as a coenzyme in cells. ATP disodium salt hydrate is an important endogenous signaling molecule in immunity and inflammation ^{[1][2]} .	
IC₅₀ & Target	Human Endogenous Metabolite	
In Vitro	<p>ATP disodium salt hydrate (5mM; 1 hour) co-treatment with LPS (1 µg/ml) has a synergistic effect on the activation of the NLRP3 inflammasome in HGFs^[3].</p> <p>?ATP disodium salt hydrate (2 mM; 0.5-24 hours) induces secretion of interleukin 1β, KC and MIP-2 from bone marrow derived macrophages (BMDMs) in vitro in a caspase-1 activation-dependent manner^[4].</p> <p>?ATP disodium salt hydrate stimulates cytokine and chemokine secretion and inflammasome activation directly and indirectly induces in vitro neutrophil chemotaxis^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
In Vivo	<p>ATP disodium salt hydrate (50 mg/kg; i.p.) protects mice against bacterial infection in vivo^[4].</p> <p>?ATP disodium salt hydrate induces the secretion of IL1β, KC and MIP-2 and neutrophils recruitment in vivo^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
	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

- Immunity. 2024 Mar 12;57(3):495-512.e11.
- Protein Cell. 2021 Oct 22;1-21.
- ACS Nano. 2023 Nov 21.
- Mol Cell. 2023 May 19;S1097-2765(23)00324-6.
- Mol Cell. 2022 Apr 14;S1097-2765(22)00290-8.

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REFERENCES

- [1]. Bonora M, et al. ATP synthesis and storage. Purinergic Signal. 2012 Sep;8(3):343-57.
- [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 NAct 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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