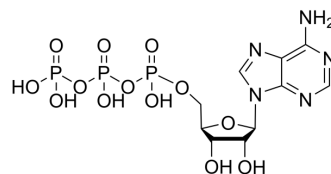


## ATP

<b>Cat. No.:</b>	HY-B2176
<b>CAS No.:</b>	56-65-5
<b>Molecular Formula:</b>	C <sub>10</sub> H <sub>16</sub> N <sub>5</sub> O <sub>13</sub> P <sub>3</sub>
<b>Molecular Weight:</b>	507.18
<b>Target:</b>	Endogenous Metabolite
<b>Pathway:</b>	Metabolic Enzyme/Protease
<b>Storage:</b>	-20°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



## SOLVENT & SOLUBILITY

<b>In Vitro</b>	H <sub>2</sub> O : ≥ 100 mg/mL (197.17 mM) * "≥" means soluble, but saturation unknown.					
	<b>Preparing Stock Solutions</b>	<b>Solvent</b>	<b>Mass</b>	<b>1 mg</b>	<b>5 mg</b>	<b>10 mg</b>
		<b>Concentration</b>				
		<b>1 mM</b>		1.9717 mL	9.8584 mL	19.7169 mL
		<b>5 mM</b>		0.3943 mL	1.9717 mL	3.9434 mL
<b>10 mM</b>		0.1972 mL	0.9858 mL	1.9717 mL		
Please refer to the solubility information to select the appropriate solvent.						
<b>In Vivo</b>	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (197.17 mM); Clear solution; Need ultrasonic and warming and heat to 60°C					

## BIOLOGICAL ACTIVITY

<b>Description</b>	ATP (Adenosine 5'-triphosphate) is a central component of energy storage and metabolism in vivo. ATP provides the metabolic energy to drive metabolic pumps and serves as a coenzyme in cells. ATP is an important endogenous signaling molecule in immunity and inflammation <sup>[1][2]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	Human Endogenous Metabolite
<b>In Vitro</b>	ATP (5 mM; 1 hour) co-treatment with LPS (1 µg/mL) has a synergistic effect on the activation of the NLRP3 inflammasome in HGFs <sup>[3]</sup> . ATP (2 mM; 0.5-24 hours) induces secretion of IL-1β, KC and MIP-2 from BMDMs in a caspase-1 activation-dependent manner <sup>[4]</sup> . ATP promotes neutrophil chemotaxis in vitro <sup>[4]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## In Vivo

ATP (50 mg/kg; i.p.) protects mice against bacterial infection in vivo<sup>[4]</sup>.  
ATP induces the secretion of IL-1 $\beta$ , KC and MIP-2 and neutrophils recruitment in vivo<sup>[4]</sup>.  
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) <sup>[4]</sup>
Dosage:	50 mg/kg
Administration:	Intraperitoneal injection, before bacterial (E. coli) challenge
Result:	Protected mice from bacterial infection.

## CUSTOMER VALIDATION

- Immunity. 2024 Feb 16:S1074-7613(24)00044-X.
- 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.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

- [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 NAcT Leucine-rich repeat Protein 3 inflammasome activation and interleukin-1 $\beta$  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.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA