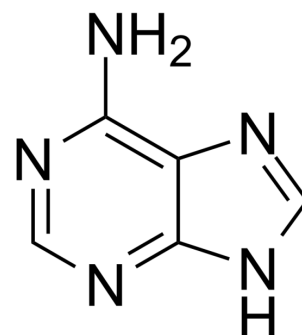


## Adenine

<b>Cat. No.:</b>	HY-B0152		
<b>CAS No.:</b>	73-24-5		
<b>Molecular Formula:</b>	C <sub>5</sub> H <sub>5</sub> N <sub>5</sub>		
<b>Molecular Weight:</b>	135.13		
<b>Target:</b>	DNA/RNA Synthesis; Endogenous Metabolite		
<b>Pathway:</b>	Cell Cycle/DNA Damage; Metabolic Enzyme/Protease		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 10 mg/mL (74.00 mM)  
 H<sub>2</sub>O : 2 mg/mL (14.80 mM); ultrasonic and warming and heat to 60°C  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	7.4003 mL	37.0014 mL	74.0028 mL
	5 mM	1.4801 mL	7.4003 mL	14.8006 mL
	10 mM	0.7400 mL	3.7001 mL	7.4003 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

1. Add each solvent one by one: PBS  
 Solubility: 1 mg/mL (7.40 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

### BIOLOGICAL ACTIVITY

#### Description

Adenine (6-Aminopurine), a purine, is one of the four nucleobases in the nucleic acid of DNA. Adenine acts as a chemical component of DNA and RNA. Adenine also plays an important role in biochemistry involved in cellular respiration, the form of both ATP and the cofactors (NAD and FAD), and protein synthesis<sup>[1][2][3]</sup>.

#### IC<sub>50</sub> & Target

Human Endogenous Metabolite	Microbial Metabolite
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#### In Vivo

Adenine can be used to induce chronic kidney injury models. Pharmacokinetic data show that in adult male Sprague-Dawley rats, 20-30 minutes after administration (10 mg/kg, i.v.), the Adenine content in blood dialysate samples is 0.78 µg/mL<sup>[4]</sup>.

## Induction of Chronic Kidney Disease (CKD)<sup>[4][5][6]</sup>

- Background

Adenine is metabolized by the liver to form dihydroxyadenine, which is insoluble in water. The latter is deposited in the kidneys, which can cause post-renal obstruction, affect uric acid excretion, and cause kidney damage.

- Specific Modeling Methods

Mice: C57BL/6J • 8 weeks of age  
Administration: 0.2% Adenine in diet; 3 weeks  
Rat: Sprague-Dawley (SD) • male • 8 weeks of age  
Administration: 0.5% Adenine in diet; 3 weeks

### Note

- Modeling Indicators

Biochemical changes: KW-to-BW ratio increasing; Systolic and diastolic blood pressure increasing; Blood urea nitrogen increasing; serum creatinine levels increasing

- Correlated Product(s): /

- Opposite Product(s): /

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

## CUSTOMER VALIDATION

- Cell Rep Med. 2024 Aug 20;5(8):101690.
- Adv Healthc Mater. 2025 Feb 28:e2404388.
- Cell Rep. 2024 Dec 30;44(1):115116.
- Phytomedicine. 2022 Mar 21;100:154067.
- Biomed Pharmacother. 2024 Jun 15;177:116859.

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

## REFERENCES

- [1]. Yung-Jen Tsai, et al. Pharmacokinetics of Adenosine and Cordycepin, a Bioactive Constituent of Cordyceps sinensis in Rat. J Agric Food Chem 2010 Apr 28;58(8):4638-43.
- [2]. Fatma F Mohamed, et al. Dentoalveolar Alterations in an Adenine-Induced Chronic Kidney Disease Mouse Model. J Bone Miner Res. 2023 Aug;38(8):1192-1207.

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- [3]. Chien-Ning Hsu, et al. Sodium Thiosulfate Improves Hypertension in Rats with Adenine-Induced Chronic Kidney Disease. *Antioxidants (Basel)*. 2022 Jan 11;11(1):147.
- [4]. ORO J, et al. Synthesis of purines under possible primitive earth conditions. I. Adenine from hydrogen cyanide. *Arch Biochem Biophys*. 1961 Aug;94:217-27.
- [5]. Griffiths AJF, et al. *An Introduction to Genetic Analysis*. 7th edition. New York: W. H. Freeman; 2000. Structure of DNA.
- [6]. Reader V. The assay of vitamin B(4). *Biochem J*. 1930;24(6):1827-31.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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