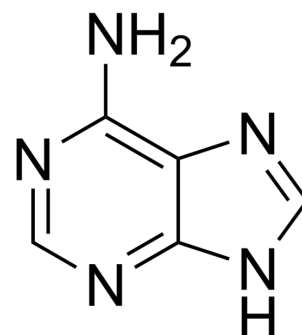


## Adenine

|                           |  |       |         |
|---------------------------|--|-------|---------|
| <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

1M HCl : 20 mg/mL (148.01 mM; Need ultrasonic)  
 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 |
|-----------------------------|----------------------|

#### In Vivo

Adenine can be used in animal modeling to construct high uric acid models. The pharmacokinetic data shows that blood dialysate sample containing Adenine (10 mg/kg i.v.) of 0.78 µg/ml after 20-30min administrating in adult

Sprague-Dawley male rat<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

- Modeling Indicators

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

- Opposite Product(s):

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

## CUSTOMER VALIDATION

- Phytomedicine. 2022 Mar 21;100:154067.
- Talanta. 2023 Sep 6, 125171.
- Molecules. 2023 Apr 11, 28(8), 3375.
- Pharmaceuticals. 2023, 16(3), 361.
- Biosci Rep. 2021 Oct 29;41(10):BSR20211598.

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.

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- [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.
- [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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