Azathioprine

Cat. No.: HY-B0256

CAS No.: 446-86-6

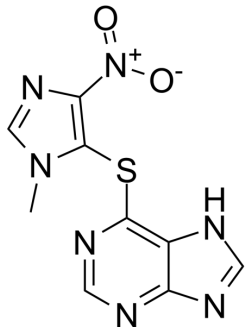
Molecular Formula: $C_9H_7N_7O_2S$

Molecular Weight: 277.26

Target: Apoptosis

Pathway: Apoptosis

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (180.34 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.6067 mL	18.0336 mL	36.0672 mL
5 mM	0.7213 mL	3.6067 mL	7.2134 mL
10 mM	0.3607 mL	1.8034 mL	3.6067 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (7.50 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.50 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (7.50 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Azathioprine (BW 57-322) is an orally active immunosuppressive agent. Azathioprine can be converted in vivo to the active metabolite 6-mercaptopurine (6-MP). Azathioprine has myelosuppressive effects and induces apoptosis[1][3].

In Vitro

Azathioprine (0-50 μM, 48 hours) can induce severe intracellular GSH depletion with relevant concentrations in both primary rat and human hepatocytes[2].

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

Cell Viability Assay[2]

Cell Line:	Rat hepatocytes, Human hepatocytes
Concentration:	0-50 μM
Incubation Time:	24-48 hours
Result:	Showed the decrease in cell viability and intracellular GSH levels in rat hepatocytes as low concentration of 0.5 μM but no significant decrease in cell viability at concentrations below 50 μM as well as GSH depletion was obviously noted at a concentration as low as 1 μM in human hepatocytes.

In Vivo

Azathioprine (oral gavage, 25-400 mg/kg, everyday, 10days) can affect bone marrow cells, red blood cells, and peripheral blood cytokines and other related parameters in a dose-dependent manner, and can induce apoptosis in female CD-1 mice and ICR mice[3].

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

Animal Model:	Outbred female CD-1 mice, Female ICR mice[3]
Dosage:	25-400 mg/kg
Administration:	Oral gavage; everyday; 10days
Result:	Induced a decrease in erythrocyte-related parameters as well as leukocyte-related parameters in a dose-dependent manner. Induced 52.4%, 35.4%, 17.9%, 16.1% and 15.2% reduction in bone marrow cells at concentrations of 40, 60, 80, 100 and 120 mg/kg, respectively while fms-like tyrosine kinase-3(FLT-3) ligand (FL)-related cytokines were increased.

CUSTOMER VALIDATION

- APL Bioeng. 2023 Aug 11;7(3):036108.
- Comput Struct Biotec. 2023 Feb 24.
- Biotechnol Bioeng. 2021 Sep 3.
- PLoS Negl Trop Dis. 2019 Aug 20;13(8):e0007681.

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REFERENCES

[1]. Patel, A.A., R.A. Swerlick, and C.O. McCall, Azathioprine in dermatology: the past, the present, and the future. J Am Acad Dermatol, 2006. 55(3): p. 369-89.

[2]. Maltzman, J.S. and G.A. Koretzky, Azathioprine: old drug, new actions. J Clin Invest, 2003. 111(8): p. 1122-4.

[3]. Dubinsky, M.C., Azathioprine, 6-mercaptopurine in inflammatory bowel disease: pharmacology, efficacy, and safety. Clin Gastroenterol Hepatol, 2004. 2(9): p. 731-43.

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