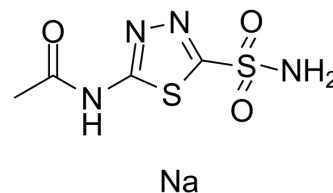


Acetazolamide sodium

Cat. No.:	HY-B0782A
CAS No.:	1424-27-7
Molecular Formula:	C ₄ H ₆ N ₄ NaO ₃ S ₂
Molecular Weight:	245.24
Target:	Carbonic Anhydrase; Autophagy; Bacterial
Pathway:	Metabolic Enzyme/Protease; Autophagy; Anti-infection
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

H₂O : ≥ 100 mg/mL (407.76 mM)
 DMSO : 100 mg/mL (407.76 mM; Need ultrasonic)
 * "≥" means soluble, but saturation unknown.

	Solvent	Mass	Concentration		
			1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		4.0776 mL	20.3882 mL	40.7764 mL
	5 mM		0.8155 mL	4.0776 mL	8.1553 mL
	10 mM		0.4078 mL	2.0388 mL	4.0776 mL

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

BIOLOGICAL ACTIVITY

Description

Acetazolamide sodium is a carbonic anhydrase (CA) IX inhibitor with an IC₅₀ of 30 nM for hCA IX. Acetazolamide sodium has diuretic, antihypertensive and anti-gonococcal activities^{[1][4][5][6]}.

IC₅₀ & Target

IC₅₀: 30 nM (hCA IX), 130 nM (hCA II)^[1]

In Vitro

Acetazolamide also inhibits hCA II with an IC₅₀ of 130 nM^[1].

Acetazolamide (Ace) is a small heteroaromatic sulfonamide that binds to various carbonic anhydrases with high affinity, acting as a carbonic anhydrase (CA) inhibitor^[2].

Compared with the control group, the high Acetazolamide concentration (AceH, 50 nM), Cisplatin (Cis; 1 µg/mL) and Cis combined with the low Acetazolamide concentration (AceL, 10 nM) treatments significantly reduces viability of Hep-2 cells^[2].

Treatment with the Acetazolamide/Cis combination significantly increases the expression levels of P53, as both AceL+Cis and AceH+Cis treatments result in significantly increased P53 protein expression levels compared with the control group. The Ace/Cis combination treatment significantly reduces the bcl-2/bax expression ratio, and increases the expression of caspase-3 protein, compared with the control group. AceL, AceH, Cis and AceL+Cis treatments significantly reduce the bcl-

2/bax ratio compared with the control group^[2].

Combined Ace and Cis treatment effectively promotes apoptosis in Hep-2 cells^[2].

Combined treatment with Ace/Cis markedly decreases the expression of AQP1 mRNA in Hep-2 cells. Both AceH and AceL+Cis treatments decrease the expression of aquaporin-1 (AQP1) mRNA in Hep-2 cells compared with the control group^[2].

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

In Vivo

Acetazolamide (40 mg/kg) significantly potentiates the inhibitory effect of MS-275 on tumorigenesis in neuroblastoma (NB) SH-SY5Y xenografts^[3].

Acetazolamide (40 mg/kg) and/or MS-275 treatment reduce expression of HIF1- α and CAIX in NB SH-SY5Y xenograft^[3].

Acetazolamide (40 mg/kg), MS-275 and Acetazolamide+MS-275 reduce expression of mitotic and proliferative markers in NB SH-SY5Y xenografts^[3]. Acetazolamide (50 mg/kg; PO, for 3 days) significantly reduces the gonococcal load in the vagina of infected mice by 90%^[6].

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

CUSTOMER VALIDATION

- Elife. 2018 Feb 2;7:e33432.
- Anal Chem. 2020 Jun 2;92(11):7657-7665.
- J Pharmaceut Biomed. 2020, 113870.
- Research Square Print. December 16th, 2022.

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REFERENCES

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- [2]. Hou Z, et al. Dual-tail approach to discovery of novel carbonic anhydrase IX inhibitors by simultaneously matching the hydrophobic and hydrophilic halves of the active site. Eur J Med Chem. 2017 May 26;132:1-10.
- [3]. Gao H, et al. Combined treatment with acetazolamide and cisplatin enhances chemosensitivity in laryngeal carcinoma Hep-2 cells. Oncol Lett. 2018 Jun;15(6):9299-9306.
- [4]. Kassamali R, et al. Acetazolamide: a forgotten diuretic agent. Cardiol Rev. 2011 Nov-Dec;19(6):276-8.
- [5]. Jabeen E, et al. Interaction of antihypertensive acetazolamide with nonsteroidal anti-inflammatory drugs. J Photochem Photobiol B. 2013 Aug 5;125:155-63.
- [6]. Abutaleb NS, et al. In vivo efficacy of acetazolamide in a mouse model of Neisseria gonorrhoeae infection. Microb Pathog. 2022 Mar;164:105454.

Caution: Product has not been fully validated for medical applications. For research use only.

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