Benzolamide

Cat. No.: HY-118467

CAS No.: 3368-13-6

Molecular Formula: $C_8H_8N_4O_4S_3$

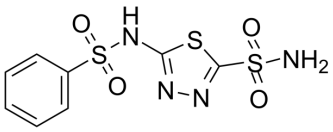
Molecular Weight: 320.37

Target: Carbonic Anhydrase

Pathway: Metabolic Enzyme/Protease

Storage: 4°C, protect from light

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (780.35 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1214 mL	15.6070 mL	31.2139 mL
	5 mM	0.6243 mL	3.1214 mL	6.2428 mL
	10 mM	0.3121 mL	1.5607 mL	3.1214 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 (6.49 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.49 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.49 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Benzolamide (CL11366) is a potent carbonic anhydrase (CA) inhibitor, with K_is of 15 nM, 9 nM, 94 nM and 78 nM for hCA I, hCA II, EcoCAγ and VchCAγ, respectively. Benzolamide also inhibits CAS3, with a K_i of 54 nM. Benzolamide can be used for the research of glaucoma and seizures[1][2][3].

IC_{50} & Target

Ki: 15 nM (hCA I), 9 nM (hCA II), 94 nM (EcoCAγ), 78 nM (VchCAγ), 54 nM (CAS3)[1][2]

In Vitro

Benzolamide inhibits hCA I, hCA II, EcoCAγ and VchCAγ, with K_is of 15 nM, 9 nM, 94 nM and 78 nM, respectively[1].
Benzolamide shows selectivity for CAS3 (K_i=54 nM) over CAS1 (K_i=2115 nM) and CAS2 (K_i=410 nM)[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Benzolamide (90 μmol/kg; i.p.) decreases brain pH and suppresses electrographic post-asphyxia seizures in rats[3].

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Animal Model:	Male and female Wistar Han rats (11-day-old)[3]
Dosage:	90 μmol/kg
Administration:	A single i.p.
Result:	Induced a fast brain acidosis of a comparable magnitude. Suppressed electrographic seizures after asphyxia by slowing down the recovery of brain pH.

REFERENCES

[1]. Prete SD, et, al. Escherichia coli γ-carbonic anhydrase: characterisation and effects of simple aromatic/heterocyclic sulphonamide inhibitors. J Enzyme Inhib Med Chem. 2020 Dec;35(1):1545-1554.

[2]. Vullo D, et, al. Sulfonamide Inhibition Studies of the β-Class Carbonic Anhydrase CAS3 from the Filamentous Ascomycete Sordaria macrospora. Molecules. 2020 Feb 25;25(5):1036.

[3]. Pospelov AS, et, al. Carbonic anhydrase inhibitors suppress seizures in a rat model of birth asphyxia. Epilepsia. 2021 Jun 27.

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