Guanabenz hydrochloride

Cat. No.: HY-12724A

CAS No.: 23113-43-1

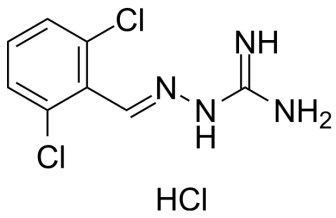
Molecular Formula: $C_8H_9Cl_3N_4$

Molecular Weight: 267.54

Target: Parasite; Adrenergic Receptor

Pathway: Anti-infection; GPCR/G Protein; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (373.78 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.7378 mL	18.6888 mL	37.3776 mL
	5 mM	0.7476 mL	3.7378 mL	7.4755 mL
	10 mM	0.3738 mL	1.8689 mL	3.7378 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: ≥ 2.5 mg/mL (9.34 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.34 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.34 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Guanabenz hydrochloride is an orally active α-2-adrenoceptor agonist. Guanabenz hydrochloride has antihypertensive effect and antiparasitic activity. Guanabenz hydrochloride interferes ER stress-signalling and has protective effects in cardiac myocytes. Guanabenz hydrochloride also is used for the research of high blood pressure[1][2][3].

IC_{50} & Target		
	Toxoplasma	Toxoplasma

In Vitro

Guanabenz hydrochloride (0.5-50 μM, 24 h) is treated with increasing concentrations for 24 hours not affect cell viability[1]. Guanabenz hydrochloride (0.5-50 μM, 24 h) alone not affects the UPR targets, neither on mRNA or protein level nor the

phosphorylation status of eIF2a. Guanabenz also not induces GADD34 or the constitutively active form CReP[1].
Guanabenz hydrochloride (0.5-50 μM, 24 h) alone not induces ER stress in neonatal rat cardiomyocytes[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Neonatal rat cardiac myocytes (NRCM)
Concentration:	0.5-50 μM
Incubation Time:	24 h
Result:	Did not affect cell survival.

Western Blot Analysis[1]

Cell Line:	Neonatal rat cardiac myocytes (NRCM)
Concentration:	0.5-50 μM
Incubation Time:	24 h
Result:	Increased the levels of low panel concentration-dependent UPR targets proteins.

RT-PCR[1]

Cell Line:	Neonatal rat cardiac myocytes (NRCM)
Concentration:	0.5-50 μM
Incubation Time:	24 h
Result:	Did not affect levels of UPR targets.

In Vivo

Guanabenz hydrochloride (5 mg/kg/day; i.p.; for 3 weeks) can reproducibly reduce brain cyst burden[2].
Guanabenz hydrochloride (5 mg /kg/d, i.p., oral; 10 mg/kg/d, gavage; for 3 weeks) reverses Toxoplasma-induced hyperactivity in latently infected mice[2].
Guanabenz hydrochloride (100 and 320 μg/kg and 1 mg/kg, i.v., over a period of 5 min at intervals of 40 min) reduces sympathetic outflow, heart rate and blood pressure in debuffered cats[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	BALB/cJ mice[2]
Dosage:	5 mg/kg
Administration:	5 mg/kg/day; i.p. ; for 3 weeks
Result:	Reduced the latent brain cysts in both male and female BALB/cJ mice.

Animal Model:	BALB/cJ mice[2]
Dosage:	5 mg/kg; 10 mg/kg
Administration:	5 mg /kg/d, i.p., oral; 10 mg/kg/d, gavage; for 3 weeks
Result:	Reversed parasite-induced hyperactivity to near-baseline levels.

Animal Model:	Cats[3]
Dosage:	100 and 320 μg/kg and 1 mg/kg
Administration:	100 and 320 μg/kg and 1 mg/kg, i.v., over a period of 5 min at intervals of 40 min
Result:	Declined markedly blood pressure and nerve activity.

REFERENCES

[1]. Christiane Neuber, et al. Guanabenz interferes with ER stress and exerts protective effects in cardiac myocytes. PLoS One. 2014 Jun 3;9(6):e98893.

[2]. Jennifer Martynowicz, et al. Guanabenz Reverses a Key Behavioral Change Caused by Latent Toxoplasmosis in Mice by Reducing Neuroinflammation. mBio. 2019 Apr 30;10(2):e00381-19.

[3]. T Baum, et al. Studies on the centrally mediated hypotensive activity of guanabenz. Eur J Pharmacol. 1976 May;37(1):31-44.

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