Guanidinosuccinic acid

Cat. No.: HY-113373

CAS No.: 6133-30-8

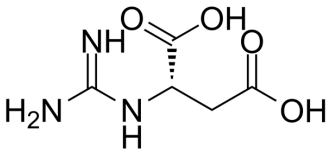
Molecular Formula: $C_5H_9N_3O_4$

Molecular Weight: 175.14

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

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

DMSO : 75 mg/mL (428.23 mM; Need ultrasonic)
H_2O : 6 mg/mL (34.26 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	5.7097 mL	28.5486 mL	57.0972 mL
	5 mM	1.1419 mL	5.7097 mL	11.4194 mL
	10 mM	0.5710 mL	2.8549 mL	5.7097 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 9.09 mg/mL (51.90 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Guanidinosuccinic acid is a nitrogenous metabolite.

IC_{50} & Target

Human Endogenous Metabolite

In Vivo

Guanidinosuccinic acid, a constituent of normal urine, is elevated in the urine and serum of azotemic patients[1]. Guanidinosuccinic acid (GSA), a guanidino compound found to be greatly increased in uremia, is administered by intraperitoneal (i.p.) injection to adult albino mice and to young mice 7, 14 and 21 days old. Epileptogenic and toxic properties are assessed and Guanidinosuccinic acid brain levels following i.p. injection ae determined. In adult mice, Guanidinosuccinic acid induces long-lasting generalized clonic and clonic-tonic convulsions in a dose-dependent manner with a CD_{50} (and 95% confidence interval) of 363 (287-458) mg/kg (n=35), and an LD_{50} of 579 (445-756) mg/kg. The CD_{50} of Guanidinosuccinic acid corresponded with a brain concentration of 56 nmol/g tissue. Electrocorticographic recording in five adult mice revealed epileptiform discharges (spikes, spike-waves, and polyspike-waves) which appeared concomitant with

the convulsions, When young mice are i.p. injected with a (for adults) subconvulsive dose of Guanidinosuccinic acid (250 mg/kg), an age-dependent decrease is noted in Guanidinosuccinic acid-induced convulsions and in the resulting brain concentration[2].

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

PROTOCOL

Animal Administration [2]

Mice[2]

Randomly bred Swiss mice (male and female, body weight 13-25 g for the first series of experiments) are housed under standard environmentally controlled conditions. For another series of experiments, young Swiss mice 7, 14 and 21 days old are used. Injections of Guanidinosuccinic acid suspensions are delivered in volumes of 0.1 mL per 10 g body weight, i.p. and in doses between 250 and 1000 mg/kg (5 mice per dose, in duplicate). After injection, the mice are put in individual cylindrical transparent cages and observed for 1 h (for 2 h in the case of the young mice). Both CD_{50} and LD_{50} are calculated by probit analysis or moving average interpolation[2].

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REFERENCES

[1]. Milstien S, et al. Role of intestinal microflora in the metabolism of guanidinosuccinic acid. J Bacteriol. 1973 May;114(2):641-4.

[2]. D'Hooge R, et al. Behavioral toxicity of guanidinosuccinic acid in adult and young mice. Toxicol Lett. 1992 Dec;64-65 Spec No:773-7.

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