Guanidine hydrochloride

Cat. No.: HY-B0178A

CAS No.: 50-01-1

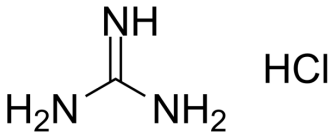
Molecular Formula: CH_6ClN_3

Molecular Weight: 95.53

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 : ≥ 100 mg/mL (1046.79 mM)
H_2O : 100 mg/mL (1046.79 mM; Need ultrasonic)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	10.4679 mL	52.3396 mL	104.6792 mL
	5 mM	2.0936 mL	10.4679 mL	20.9358 mL
	10 mM	1.0468 mL	5.2340 mL	10.4679 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (1046.79 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (21.77 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (21.77 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (21.77 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Guanidine hydrochloride (Guanidinium chloride) a strong chaotrope, is also a strong denaturant of proteins[1][2].
IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Guanidine hydrochloride at low concentrations refolds acid-unfolded apomyoglobin and cytochrome c, stabilizing the

	molten globule state, i.e. a compact denatured state with a significant amount of secondary structure, but substantially disordered tertiary structure. Guanidine hydrochloride (> 1 M) causes co-operative unfolding of the molten globule state[1]. A considerable degree of ordered structure remains due to the presence of disulfide bonds, which Guanidine hydrochloride does not affect[2]. Guanidine hydrochloride at millimolar concentrations, is able to causes efficient loss of the normally stable [PSI^+] element from yeast cells. 5 mM Guanidine hydrochloride in growth media cures [PSI^+] and other prions of yeast. 5 mM Guanidine hydrochloride significantly reduces Hsp104-mediated basal and acquired thermotolerance by 30-fold and 50 fold, respectively. Guanidine hydrochloride also reduces the ability of Hsp104 to restore activity of thermally denatured luciferase [3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	A significant reduction in the death rate of infant mice infected with ten LD_{50}) of coxsackievirus A16 is observed when they are treated 58 h after infection with two injections of Guanidine hydrochloride at 145 mg/kg per injection[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Virus Res. 2020 Jul 2;283:197974.
- Virol J. 2018 Jan 3;15(1):1.

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REFERENCES

[1]. Y Hagihara, et al. Guanidine hydrochloride-induced folding of proteins. J Mol Biol. 1993 May 20;231(2):180-4.

[2]. G Jung, et al. Guanidine hydrochloride inhibits Hsp104 activity in vivo: a possible explanation for its effect in curing yeast prions. Curr Microbiol. 2001 Jul;43(1):7-10.

[3]. Saeed Emadi, et al. A comparative study on the aggregating effects of guanidine thiocyanate, guanidine hydrochloride and urea on lysozyme aggregation. Biochem Biophys Res Commun. 2014 Aug 8;450(4):1339-44.

[4]. E C Herrmann Jr, et al. Prevention of death in mice infected with coxsackievirus A16 using guanidine HCl mixed with substituted benzimidazoles. Antiviral Res. 1982 Dec;2(6):339-46.

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