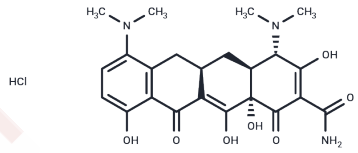
Data Sheet (Cat.No.T1101)

TargetMol

Minocycline hydrochloride

Chemical Properties



CAS No. : 13614-98-7

Formula: C23H28ClN3O7

Molecular Weight: 493.94

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Minocycline hydrochloride (Minocycline HCl) is a tetracycline antibiotic with excellent absorption and tissue penetration that is used for several bacterial infections as well as treatment of acne. Minocycline hydrochloride can cause both an acute hepatitis-like syndrome occurring within 1 to 3 months of starting therapy or a more insidious chronic hepatitis with autoimmune features typically after long-term treatment.
Targets(IC50)	Apoptosis,Calcium Channel,HIF/HIF Prolyl-Hydroxylase,Antibacterial,Antibiotic, Potassium Channel,MDM-2/p53
In vitro	Minocycline exhibits significant neuroprotective effects in models of cerebral ischemia, traumatic brain injury, Huntington's disease, and Parkinson's disease. Its neuroprotective properties may involve the inhibition of 5-lipoxygenase (an inflammatory enzyme associated with brain aging). Additionally, Minocycline's activity is linked to the inhibition of protein synthesis.
In vivo	Minocycline inhibits the release of cytochrome c mediated by the permeability transition in mitochondria. This inhibition by minocycline on cytochrome c release has been demonstrated in vivo, in cells, and isolated mitochondria. Additionally, minocycline suppresses the activity of inducible caspase-1 and caspase-3, inducible nitric oxide synthase (iNOS), and p38 mitogen-activated protein kinase (MAPK). Following experimental focal ischemia, minocycline reduces the upregulation of caspase-1 and iNOS, thereby decreasing infarct size.

Solubility Information

Solubility	H2O: 5 mg/mL (10.12 mM),Sonication is recommended. DMSO: 257.5 mg/mL (521.32 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	Saline: < 1 mg/mL (insoluble) *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0245 mL	10.1227 mL	20.2454 mL
5 mM	0.4049 mL	2.0245 mL	4.0491 mL
10 mM	0.2025 mL	1.0123 mL	2.0245 mL
50 mM	0.0405 mL	0.2025 mL	0.4049 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Wang X, et al. Minocycline inhibits caspase-independent and -dependent mitochondrial cell death pathways in models of Huntington's disease. Proc Natl Acad Sci U S A. 2003 Sep 2;100(18):10483-7.
Wang W, Liu W Z, Wang Z L, et al. Spinal microglial activation promotes perioperative social defeat stress-induced prolonged postoperative pain in a sex-dependent manner. Brain, Behavior, and Immunity. 2021
Shui, Sufang, et al. Non-enzymatic lipid peroxidation initiated by photodynamic therapy drives a distinct ferroptosis-like cell death pathway. Redox Biology. (2021): 102056
Rok J, et al. Minocycline Impact on Redox Homeostasis of Normal Human Melanocytes HEMn-LP Exposed to UVA Radiation and Hydrogen Peroxide. Int J Mol Sci. 2021 Feb 6;22(4):1642.
Wang X, et al. Proc Natl Acad Sci U S A, 2003, 100(18), 10483-10487.
Guo K, Gao L, Li P, et al.Allopregnanolone relieves paclitaxel induced mechanical hypersensitivity via inhibiting spinal cord PGE2-EP2 mediated microglia-neuron signaling.IBRO Neuroscience Reports.2025