1400W Dihydrochloride

Cat. No.: HY-18731

CAS No.: 214358-33-5

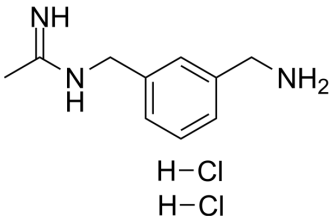
Molecular Formula: $C_{10}H_{17}Cl_2N_3$

Molecular Weight: 250.17

Target: NO Synthase; Apoptosis

Pathway: Immunology/Inflammation; Apoptosis

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

H_2O : 100 mg/mL (399.73 mM; Need ultrasonic)
DMSO : 20 mg/mL (79.95 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.9973 mL	19.9864 mL	39.9728 mL
5 mM	0.7995 mL	3.9973 mL	7.9946 mL
10 mM	0.3997 mL	1.9986 mL	3.9973 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 (399.73 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2 mg/mL (7.99 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2 mg/mL (7.99 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2 mg/mL (7.99 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

1400W dihydrochloride is the dihydrochloride form of 1400W (HY-18730). 1400W is a slow, tight binding, and highly selective inducible nitric-oxide synthase (iNOS) inhibitor, with a K_d value ≤ 7 nM. 1400W inhibits iNOS induction in microglial cells, and reduces generation of NO, thereby mitigating oxidative stress and neuronal cell apoptosis in the rat cerebral cortex, and improving the spatial memory dysfunction caused by acute hypobaric hypoxia-reoxygenation[1][2].

IC_{50} & Target

iNOS

In Vitro	1400W (60 μM, 1 h) reduces NO, 3-NT and MDA production in primary adult microglia, and prevents neuronal cell apoptosis in cerebral cortex[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	1400W (0.1-10 mg/kg, s.c., once time) inhibits the leakage of rats ileum, with an EC_{50} of 0.16 mg/kg[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [1]	Rats: The effects of 1400W on plasma leakage are assessed in rats by determining the leakage of [^{125}I]human serum albumin from plasma into organs. 1400W (0.1-10 mg/kg, subcutaneous) is dissolved in isotonic saline and administered either concurrently with endotoxin or 3 h following LPS administration (E. coli LPS, 3 mg/kg intravenously). Plasma leakage is then assessed 1 or 5 h after delivery of 1400W[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Cell. 2020 Jan 2;77(1):95-107.e5.
- Mol Cell. 2020 Jan 2;77(1):95-107.e5.
- Redox Biol. 2023 Sep 27, 102905.
- ISME J. 2024 Jan 28:wrae014.
- Sci Total Environ. 2020 Jan 1;698:134294.

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REFERENCES

[1]. Garvey EP, et al. 1400W is a slow, tight binding, and highly selective inhibitor of inducible nitric-oxide synthase in vitro and in vivo. J Biol Chem. 1997 Feb 21;272(8):4959-63.

[2]. Shi Q, et al. 1400W ameliorates acute hypobaric hypoxia/reoxygenation-induced cognitive deficits by suppressing the induction of inducible nitric oxide synthase in rat cerebral cortex microglia. Behav Brain Res. 2017 Feb 15;319:188-199.

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