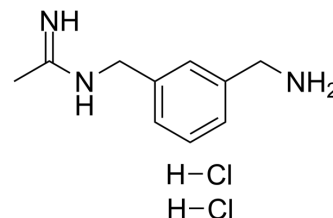


## 1400W Dihydrochloride

<b>Cat. No.:</b>	HY-18731
<b>CAS No.:</b>	214358-33-5
<b>Molecular Formula:</b>	C <sub>10</sub> H <sub>17</sub> Cl <sub>2</sub> N <sub>3</sub>
<b>Molecular Weight:</b>	250.17
<b>Target:</b>	NO Synthase
<b>Pathway:</b>	Immunology/Inflammation
<b>Storage:</b>	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<sub>2</sub>O : 100 mg/mL (399.73 mM; Need ultrasonic)  
DMSO : 20 mg/mL (79.95 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		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

- Add each solvent one by one: PBS  
Solubility: 100 mg/mL (399.73 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2 mg/mL (7.99 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2 mg/mL (7.99 mM); Clear solution
- 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 a potent and selective inhibitor of human inducible NO synthase with K<sub>i</sub> values of 7 nM.

#### IC<sub>50</sub> & Target

K<sub>i</sub>: 7 nM (iNOS), 2 μM (nNOS), 50 μM (eNOS)<sup>[1]</sup>

#### In Vitro

1400W is a slow, tight binding inhibitor of human inducible nitric- oxide synthase (iNOS). The slow onset of inhibition by 1400W shows saturation kinetics with a maximal rate constant of 0.028 s<sup>-1</sup> and a binding constant of 2.0 μM. Inhibition is

dependent on the cofactor NADPH. 1400W is at least 5000-fold selective for iNOS versus eNOS. In contrast, inhibition of human neuronal NOS and endothelial NOS (eNOS) is relatively weaker, rapidly reversible, and competitive with L-arginine, with  $K_i$  values of 2  $\mu$ M and 50  $\mu$ M, respectively<sup>[1]</sup>. 1400W treatment inhibits iNOS expression without affecting nNOS or eNOS. 1400W also reduces NO, 3-NT and MDA production, and prevents neuronal cell apoptosis in cerebral cortex<sup>[2]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### In Vivo

1400W potently ( $ED_{50}=0.3$  mg/kg) reduces the delayed vascular injury in rats attributable to LPS-induced iNOS but fails to exacerbate acute vascular leakage when given concurrently with LPS<sup>[1]</sup>. Administration of 1400W lowers NO<sub>x</sub> levels in all the experimental groups. In addition, lipid peroxidation, the percentage of apoptotic cells, and nitrated protein expression fall in the late post-hypoxia period (48 h and 5 days)<sup>[3]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

#### Animal Administration <sup>[1]</sup>

Rats: The effects of 1400W on plasma leakage are assessed in rats by determining the leakage of [<sup>125</sup>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<sup>[1]</sup>.

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.
- Cell Rep. 2022 Feb 15;38(7):110391.
- Sci Total Environ. 2020 Jan 1;698:134294.
- Int J Biol Sci. 2020 Mar 5;16(9):1563-1574.
- Biomed Pharmacother. 2022 Sep;153:113532.

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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.
- [3]. Rus A, et al. Inducible NOS inhibitor 1400W reduces hypoxia/re-oxygenation injury in rat lung. Redox Rep. 2010;15(4):169-78.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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