Mito-TEMPO

Cat. No.: HY-112879

CAS No.: 1334850-99-5

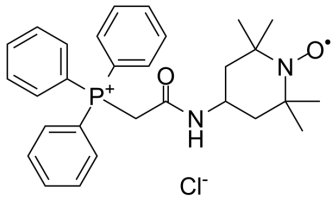
Molecular Formula: $C_{29}H_{35}ClN_2O_2P$

Molecular Weight: 510.03

Target: Mitochondrial Metabolism; Reactive Oxygen Species

Pathway: Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB

Storage: -20°C, sealed storage, away from moisture
* In solvent : -80°C, 2 years; -20°C, 1 year (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (245.08 mM; Need ultrasonic)
H_2O : 60 mg/mL (117.64 mM; Need ultrasonic)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	1.9607 mL	9.8033 mL	19.6067 mL
5 mM	0.3921 mL	1.9607 mL	3.9213 mL
10 mM	0.1961 mL	0.9803 mL	1.9607 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (98.03 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.25 mg/mL (4.41 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.25 mg/mL (4.41 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.25 mg/mL (4.41 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Mito-TEMPO is a mitochondria-targeted superoxide dismutase mimetic with superoxide and alkyl radical scavenging properties[1].

In Vivo

Mito-TEMPO (MT) greatly attenuates the increase in ALT activities and reduces the areas of necrosis at both time points, indicating that the protection by Mito-TEMPO is sustained until at least 24 h post-APAP. Mito-Tempo could induce secondary apoptosis in the late phase of APAP hepatotoxicity. Mito-Tempo induces secondary apoptosis after APAP overdose by

inhibition of RIP3[1].

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

PROTOCOL

Animal Administration [1]

Mice[1]

Male C57BL/6J mice (8-12 weeks) and RIP3-deficient mice (C57BL/6N background) are used throughout the study. The mice are acclimated before experiments with free access to diet and water. Overnight-fasted mice (16-18 h) are treated i.p. with 300 mg/kg APAP dissolved in warm saline. Some mice are treated with 200 mg/kg APAP in experiments evaluating effect of RIP3 deficiency. A dose of 20 mg/kg Mito-Tempo dissolved in saline is administered i.p. 1.5 or 3 h after APAP. Some mice are subsequently treated (i.p.) with 10 mg/kg ZVD fmk dissolved in Tris-buffered saline or vehicle 2 h after APAP. To mimic the clinical care of APAP-overdose patients, some mice receive the antidote NAC (i.p., 500 mg/kg) at 1.5 or 3 h after APAP overdose[1].

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

CUSTOMER VALIDATION

- Nat Commun. 2023 Feb 16;14(1):872.
- Adv Sci (Weinh). 2023 Feb 3;e2207084.
- Acta Pharm Sin B. 21 July 2021.
- J Hazard Mater. 2024 Apr 5:467:133719.
- J Hazard Mater. 2023 Jun 1, 131750.

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REFERENCES

[1]. Du K, et al. Mito-tempo protects against acute liver injury but induces limited secondary apoptosis during the late phase of acetaminophen hepatotoxicity. Arch Toxicol. 2018 Oct 15.

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