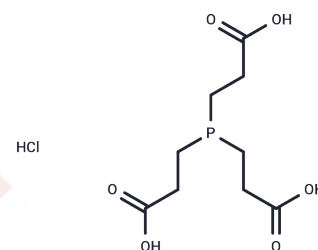


## TCEP hydrochloride

### Chemical Properties

|                   |  |
|-------------------|--|
| CAS No. :         | 51805-45-9   |
| Formula:          | C <sub>9</sub> H <sub>16</sub> ClO <sub>6</sub> P        |
| Molecular Weight: | 286.65   |
| Appearance:       | no data available  |
| Storage:          | store under nitrogen                                     |
|                   | Powder: -20°C for 3 years   In solvent: -80°C for 1 year |



### Biological Description

|               |  |
|---------------|--|
| Description   | TCEP hydrochloride (Tris(2-carboxyethyl)phosphine hydrochloride) is a trialkylphosphine that selectively reduces proteolysis. TCEP hydrochloride is a non-thiol-reducing agent that promotes the binding of NF-κB-DNA.   |
| Targets(IC50) | Others   |
| In vitro      | <p><b>METHODS:</b> Human hepatocellular carcinoma cells HepG2 were treated with TCEP hydrochloride (100-400 μM) for 3 days, and cell viability was detected by MTT assay.</p> <p><b>RESULTS:</b> The viability of HepG2 was significantly reduced to 25.68% and 70.92% after treatment with 200 and 400 μM TCEP for 3 days, whereas the lowest concentration of TCEP (100 μM) did not significantly reduce the viability of HepG2 (3.44%). [1]</p> <p><b>METHODS:</b> Human peripheral blood mononuclear cell PBMCs were treated with TCEP hydrochloride (0.5-1 mM) for 24 h. Morphological and necrotic changes were assessed by Hoechst 33342/PI staining.</p> <p><b>RESULTS:</b> Necrosis was observed in cells treated with 0.5 mM of TCEP. [2]</p>                                      |
| In vivo       | <p><b>METHODS:</b> To investigate the neurotoxicity and its mechanism in mice, TCEP hydrochloride (10-100 mg/kg) was administered by gavage to Kunming mice once a day for 30 days.</p> <p><b>RESULTS:</b> Compared with the control group, the high dose TCEP group showed a significant decrease in water intake and a significant increase in liver and spleen organ indices. In the water maze test, the escape latency of TCEP-exposed mice was longer than that of the control group, and the total swimming course of the high-dose TCEP group was higher than that of the control group, and the swimming time of the target quadrant was significantly shorter. TCEP exposure may cause neurotoxicity by increasing thyroid hormones and inducing oxidative damage in mice. [3]</p> |

### Solubility Information

|            |   |
|------------|---|
| Solubility | <p>10% DMSO+90% Saline: 2.75 mg/mL (9.59 mM), Solution.</p> <p>DMSO: 27.5 mg/mL (95.94 mM), Sonication is recommended.</p> <p>5% DMSO+95% Saline: 1.45 mg/mL (5.06 mM), Solution.</p> <p>(&lt; 1 mg/ml refers to the product slightly soluble or insoluble)</p> |
|------------|---|

### Preparing Stock Solutions

|       | 1mg       | 5mg        | 10mg       |
|-------|-----------|------------|------------|
| 1 mM  | 3.4886 mL | 17.4429 mL | 34.8857 mL |
| 5 mM  | 0.6977 mL | 3.4886 mL  | 6.9771 mL  |
| 10 mM | 0.3489 mL | 1.7443 mL  | 3.4886 mL  |
| 50 mM | 0.0698 mL | 0.3489 mL  | 0.6977 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.

### Reference

M Al-Salem A, et al. Tris(2-chloroethyl) Phosphate (TCEP) Elicits Hepatotoxicity by Activating Human Cancer Pathway Genes in HepG2 Cells. *Toxics*. 2020 Nov 20;8(4):109.

Mokra K, et al. Effects of tris(1-chloro-2-propyl)phosphate and tris(2-chloroethyl)phosphate on cell viability and morphological changes in peripheral blood mononuclear cells (in vitro study). *Hum Exp Toxicol*. 2018 Dec;37(12):1336-1345.

Wang C, et al. Neurotoxicity and related mechanisms of flame retardant TCEP exposure in mice. *Toxicol Mech Methods*. 2020 Sep;30(7):490-496.

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Tel:781-999-4286 E\_mail:info@targetmol.com Address:36 Washington Street,Wellesley Hills,MA 02481