# Cetirizine dihydrochloride

**Cat. No.:** HY-17042A

**CAS No.:** 83881-52-1

**Molecular Formula:** $C_{21}H_{27}Cl_3N_2O_3$

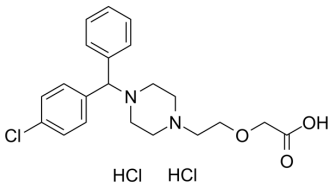
**Molecular Weight:** 461.81

**Target:** Histamine Receptor

**Pathway:** GPCR/G Protein; Immunology/Inflammation; Neuronal Signaling

**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**

DMSO : 100 mg/mL (216.54 mM; Need ultrasonic)

$H_2O$ : 100 mg/mL (216.54 mM; Need ultrasonic)

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.1654 mL | 10.8270 mL | 21.6539 mL |
| 5 mM | 0.4331 mL | 2.1654 mL | 4.3308 mL |
| 10 mM | 0.2165 mL | 1.0827 mL | 2.1654 mL |

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

**In Vivo**

1. Add each solvent one by one: PBS
   Solubility: 120 mg/mL (259.85 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (5.41 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.41 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.41 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Cetirizine dihydrochloride, a second-generation antihistamine and the carboxylated metabolite of hydroxyzine, is a specific, orally active and long-acting histamine H1-receptor antagonist. Cetirizine dihydrochloride marks antiallergic properties and inhibits eosinophil chemotaxis during the allergic response[1][2][3].

**In Vitro**

Cetirizine (>5 μM) at higher concentrations can reduce the release of GM-CSF and IL-8 from A549 cells stimulated with IL-1β. Cetirizine exerts anti-inflammatory effects beyond histamine H1-receptor antagonist[2].

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

Cell Viability Assay[2]

| | |
|---|---|
| Cell Line: | Human airway epithelial cell line A549. |
| Concentration: | 0-10 μM. |
| Incubation Time: | 24 h. |
| Result: | The survival of A549 cells incubated with various concentrations of cetirizine (0.1, 1, 2.5, 5, and 10 μM) for 24 hours were all higher than 90% when comparing with the control group by MTT test.<br>Cetirizine, 5 and 10 μM, suppressed GM-CSF release by 70.71 and 61.55%, respectively.<br>Preincubation with cetirizine, 10 μM, suppressed the IL-8 secretion by 75.04%. |

**In Vivo**

Cetirizine (20 mg/kg, mice, orally) exerts its anti-inflammatory effects by inhibiting MIF as well as IL-8 production in mice immunized and challenged with ragweed pollen[3].

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

| | |
|---|---|
| Animal Model: | Male 8-week-old BALB/c mice (25-30 g) immunized and challenged with ragweed pollen[3]. |
| Dosage: | 2 or 20 mg/kg. |
| Administration: | Orally, diluted in sterile water on days 18, 19, and 20. |
| Result: | The neutrophilia at 8 h and eosinophilia at 24 h induced by ragweed pollen extract per oswere significantly reduced in the mice treated with 20 mg/kg. The dosage with 2 mg/kg had no effect. |

## CUSTOMER VALIDATION

- Pharmacol Res. 2017 Nov;125(Pt B):150-160.
- Behav Brain Res. 2021 May 27;113388.

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## REFERENCES


[1]. Caroline M. Spencer, et al. Cetirizine. Drugs 46 (6): 1055•1080, 1993.

[2]. Shih MY, et al. Influence of cetirizine and levocetirizine on two cytokines secretion in human airway epithelial cells. Allergy Asthma Proc. 2008 Sep-Oct;29(5):480-5.

[3]. Shimizu T, et al. Cetirizine, an H1-receptor antagonist, suppresses the expression of macrophage migration inhibitory factor: its potential anti-inflammatory action. Clin Exp Allergy. 2004 Jan;34(1):103-9.





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