

Product Data Sheet

Product Name: Perindopril

Cat. No.: GC16871

Chemical Properties

Cas. No. 82834-16-0

Chemical Name (2S,3aS,7aS)-1-[(2S)-2-[[[(2S)-1-ethoxy-1-oxopentan-2-yl]amino]propanoyl]-2,3,3a,4,5,6,7,7a-octahydroindole-2-carboxylic acid

SMILES CCCC(C(=O)OCC)NC(C)C(=O)N1C2CCCCC2CC1C(=O)O

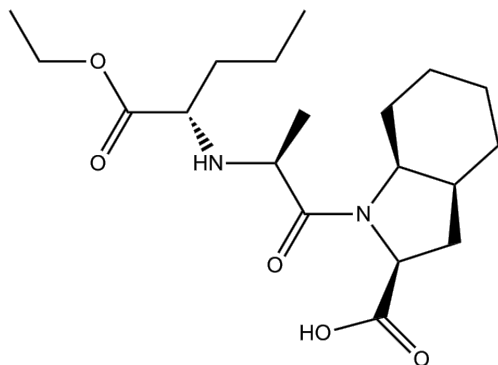
Formula C₁₉H₃₂N₂O₅ M.Wt 368.47

Solubility Ethanol: 25 mg/ml, PBS (pH 7.2): 10 mg/ml Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines Differentiated SH-SY5Y cell line (human neuroblastoma cell line differentiated to neuronal phenotype)

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Cells were differentiated with retinoic acid for one week in serum-free Preparation Method neurobasal medium. Cells were pre-treated with LPS (20µg/mL) for one hour, then exposed to Perindopril at concentrations of 1-10µg/mL for 24 hours.

Reaction
Conditions 1-10µg/mL; 24 hours

Applications Perindopril significantly increased cell viability against LPS-induced injury at all doses. Perindopril showed no statistically significant changes in acetylcholine (ACh) levels after LPS-induced injury. No significant changes in TNF-α, IL-1β, and NFκB expressions were detected with the administration of Perindopril.

Animal experiment [2]:

Animal models Swiss albino mice (Swiss strain)

Preparation Method The mice received Perindopril (1mg/kg) per orally. Perindopril were administered 2h before the experiment. Analgesic activity was evaluated using Eddy's hot plate (thermal pain), acetic acid-induced writhing (chemical pain), and tail clip (mechanical pain) methods.

Dosage form 1mg/kg; orally; single dose administered 2h before testing

Applications Perindopril significantly decreased the number of writhes in the acetic acid-induced writhing test, delayed the reaction time in the tail clip method, and increased the latency period in the Eddy's hot plate method compared to the control group, demonstrating analgesic activity in thermal, chemical, and mechanical pain models.

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References:

- [1] Şen S, Hacıosmanoğlu E. Comparing the Neuroprotective Effects of Telmisartan, Perindopril, and Nebivolol Against Lipopolysaccharide-Induced Injury in Neuron-Like Cells. *Cureus*. 2022 Jul 29;14(7):e27429.
- [2] Suresha RN, Amoghmath S, Vaibhavi PS, et al. Evaluation of analgesic activity of perindopril in albino mice. *J Adv Pharm Technol Res*. 2014 Jul;5(3):129-33.

Background

Perindopril is an angiotensin-converting enzyme (ACE) inhibitor. Perindopril lowers blood pressure and cardiac load by inhibiting the conversion of angiotensin I to angiotensin II and reducing the degradation of bradykinin. Perindopril is used in the treatment of hypertension and heart failure^[1-4].

In vitro, differentiated SH-SY5Y cells were pretreated with Perindopril (1-10µg/mL) for 24 hours, followed by stimulation with LPS (20µg/mL) for 1 hour. Perindopril significantly increased cell viability but showed no significant effects on acetylcholine (ACh) levels or the expression of pro-inflammatory factors (TNF-α, IL-1β, NFκB)^[5]. Perindopril (100µM) treated THP-1 macrophages for 24 hours. Perindopril inhibited SARS-CoV-2 Spike protein (100nM)-induced apoptosis, reactive oxygen species generation, and MHC-II expression^[6].

In vivo, Swiss mice were orally administered Perindopril (1mg/kg; single dose) 1 hour before establishing chemical, thermal, and mechanical pain models. Perindopril significantly reduced the number of writhes in mice, delayed reaction times in the tail clip test, and increased latency in the hot plate test^[7]. Starting 1 hour before a single intraperitoneal injection of cisplatin (10mg/kg), Swiss mice were orally administered Perindopril (2mg/kg; once daily) for 5 consecutive days. Perindopril significantly improved cisplatin-induced renal histological changes, levels of inflammatory factors (TNF-α, IL-6, IL-10), and expression of apoptosis-related proteins (Bax, Bcl2, caspase-3)^[8].

References:

- [1] Alfakih K, Hall AS. Perindopril. *Expert Opin Pharmacother*. 2006 Jan;7(1):63-71.
- [2] Lababidi JM, Kabil MF, Azzazy HME. Perindopril: A comprehensive profile. *Profiles Drug Subst Excip Relat Methodol*. 2026;51:211-252.
- [3] Ghiadoni L. Perindopril for the treatment of hypertension. *Expert Opin Pharmacother*. 2011

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Jul;12(10):1633-42.

[4] Simpson D, Noble S, Goa KL. Perindopril: in congestive heart failure. Drugs. 2002;62(9):1367-77.

[5] Şen S, Hacısmanoğlu E. Comparing the Neuroprotective Effects of Telmisartan, Perindopril, and Nebivolol Against Lipopolysaccharide-Induced Injury in Neuron-Like Cells. Cureus. 2022 Jul 29;14(7):e27429.

[6] Barhoumi T, Alghanem B, Shaibah H, et al. SARS-CoV-2 Coronavirus Spike Protein-Induced Apoptosis, Inflammatory, and Oxidative Stress Responses in THP-1-Like-Macrophages: Potential Role of Angiotensin-Converting Enzyme Inhibitor (Perindopril). Front Immunol. 2021 Sep 20;12:728896.

[7] Suresha RN, Amoghmath S, Vaibhavi PS, et al. Evaluation of analgesic activity of perindopril in albino mice. J Adv Pharm Technol Res. 2014 Jul;5(3):129-33.

[8] Aljuhani N, Ismail RS, El-Awady MS, et al. Modulatory effects of perindopril on cisplatin-induced nephrotoxicity in mice: Implication of inflammatory cytokines and caspase-3 mediated apoptosis. Acta Pharm. 2020 Dec 1;70(4):515-525.

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