

PRODUCT INFORMATION



Efonidipine

Item No. 33114

CAS Registry No.: 111011-63-3
Formal Name: 5-(5,5-dimethyl-2-oxido-1,3,2-dioxaphosphorinan-2-yl)-1,4-dihydro-2,6-dimethyl-4-(3-nitrophenyl)-3-pyridinecarboxylic acid, 2-[phenyl(phenylmethyl)amino]ethyl ester

Synonym: (±)-Efonidipine

MF: C₃₄H₃₈N₃O₇P

FW: 631.7

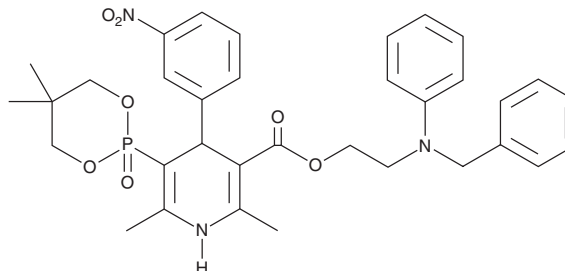
Purity: ≥98%

UV/Vis.: λ_{max}: 250 nm

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Efonidipine is supplied as a crystalline solid. A stock solution may be made by dissolving the efonidipine in the solvent of choice, which should be purged with an inert gas. Efonidipine is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of efonidipine in these solvents is approximately 20 and 30 mg/ml, respectively.

Description

Efonidipine is an inhibitor of L- and T-type voltage-gated calcium channels (Ca_vs).¹ It inhibits Ca_v1.2a (IC₅₀ = 1.8 nM for the hamster channel), an L-type Ca_v, and Ca_v3.2 (IC₅₀ = 350 nM for the human channel), a T-type Ca_v. It also inhibits L- and T-type calcium channels and fetal bovine serum-induced hypertrophy in isolated mouse cardiomyocytes.² Efonidipine (200 mg/kg) increases survival in a mouse model of acute myocardial infarction induced by ligation of the left coronary artery.³ Efonidipine is also an inhibitor of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) main protease (M^{PRO}; IC₅₀ = 38.5 μM).⁴

References

1. Lee, T.-S., Kaku, T., Takebayashi, S., *et al.* Actions of mibefradil, efonidipine and nifedipine block of recombinant T- and L-type Ca²⁺ channels with distinct inhibitory mechanisms. *Pharmacology* **78(1)**, 11-20 (2006).
2. Horiba, M., Muto, T., Ueda, N., *et al.* T-type Ca²⁺ channel blockers prevent cardiac cell hypertrophy through an inhibition of calcineurin-NFAT3 activation as well as L-type Ca²⁺ channel blockers. *Life Sci.* **82(11-12)**, 554-560 (2008).
3. Kinoshita, H., Kuwahara, K., Takano, M., *et al.* T-type Ca²⁺ channel blockade prevents sudden death in mice with heart failure. *Circulation* **120(9)**, 743-752 (2009).
4. Ghahremanpour, M.M., Tirado-Rives, J., Deshmukh, M., *et al.* Identification of 14 known drugs as inhibitors of the main protease of SARS-CoV-2. *ACS Med. Chem. Lett.* **11(12)**, 2526-2533 (2020).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 11/14/2022

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM