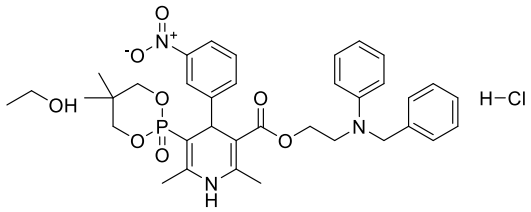
Product data sheet

MedKoo Cat#: 574685 Name: Efonidipine hydrochloride monoethanolate CAS#: 111011-76-8 Chemical Formula: $C_{36}H_{45}ClN_3O_8P$ Exact Mass: 713.2633 Molecular Weight: 714.19	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Efonidipine hydrochloride monoethanolate is a selective blocker of L-type and T-type Ca2+ channels. It displays minimal inhibition of N- and P/Q-type channels and no inhibition of R-type channels. R(-) and S(+)-enantiomers display different channel selectivity; S(+)-Efonidipine blocks L-type and T-type channels whereas R(-)-Efonidipine displays selectivity for T-type channels.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	62.5	87.51

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.40 mL	7.00 mL	14.00 mL
5 mM	0.28 mL	1.40 mL	2.80 mL
10 mM	0.14 mL	0.70 mL	1.40 mL
50 mM	0.03 mL	0.14 mL	0.28 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Ikeda K, Saito T, Tojo K. Efonidipine, a Ca(2+)-channel blocker, enhances the production of dehydroepiandrosterone sulfate in NCI-H295R human adrenocortical carcinoma cells. Tohoku J Exp Med. 2011 Aug;224(4):263-71. doi: 10.1620/tjem.224.263. PMID: 21757861.

In vivo study

1. Rajput R, Chavda V, Patel SS, Barreto GE, Ashraf GM. Efonidipine Exerts Cerebroprotective Effect by Down-regulation of TGF-β/SMAD-2-Dependent Signaling Pathway in Diabetic Rats. J Mol Neurosci. 2021 May 30. doi: 10.1007/s12031-021-01857-z. Epub ahead of print. PMID: 34056691.
2. Park MH, Son YK, Hong DH, Choi IW, Kim DJ, Lee H, Bang H, Na SH, Li H, Jo SH, Park WS. The Ca(2+) channel inhibitor efonidipine decreases voltage-dependent K(+) channel activity in rabbit coronary arterial smooth muscle cells. Vascul Pharmacol. 2013 Sep-Oct;59(3-4):90-5. doi: 10.1016/j.vph.2013.07.005. Epub 2013 Jul 19. PMID: 23876554.

7. Bioactivity
Biological target:

Efonidipine hydrochloride monoethanolate is a dual T-type and L-type calcium channel blocker (CCB).

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In vitro activity

Efonidipine and R(-)-efonidipine significantly increased the production of DHEA-S. On the contrary, angiotensin II alone decrease in the production DHEA-S, and treatment with amlodipine, efonidipine, or R(-)-efonidipine further decreased the production of DHEA-S, but azelnidipine and nifedipine did not exert significant actions on angioptensin II-induced decrease in DHEA-S (Fig. 6B).

Reference: Tohoku J Exp Med. 2011 Aug;224(4):263-71. https://pubmed.ncbi.nlm.nih.gov/21757861/

In vivo activity

Diabetes was induced using the neonatal streptozotocin rat model. Treatment with efonidipine showed a significant reduction in post-ischemic brain infract volume, brain hemisphere weight difference, neurological score, Na+-K+ ATPase activity, serum CK-MB, and LDH levels in normoglycemic and hyperglycemic MCAO-induced animals.

Reference: J Mol Neurosci. 2021 May 30. https://pubmed.ncbi.nlm.nih.gov/34056691/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.