Product Data Sheet

Chemical Properties

Product Name: Barnidipine (hydrochloride)
Cas No.: 104757-53-1
M.Wt: 528.0
Formula: C27H29N3O6 • HCl
Synonyms: YM 09730-5
Chemical Name: (4S)-3,5-pyridinedicarboxylic acid, 3-methyl 5-[(3S)-1-(phenylmethyl)-3-pyrrolidinyl] ester, monohydrochloride
Canonical SMILES: CC1=C(C(O[@H]2CN(CC3=CC=CC3)CC2)=O)[C@H](C(C(OC)=O)=C(C)N1)C4=CC([N+](([O-])=O)=CC=CC4.Cl
Solubility: ≥16.3mg/mL in DMSO with gentle warming
Storage: Store at 4°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.
Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: Membrane Transporter/Ion Channel
Pathways: Calcium Channel
Description:
Barnidipine is a calcium-channel blocker.

A calcium channel, an ion channel which displays selective permeability to calcium ions, is sometimes synonymous as voltage-dependent calcium channel, although there are also ligand-gated calcium channels.
In vitro: The effects of barnidipine on L-type Ca(2+) current (I(Ca(L))) were investigated in rat ventricular cardiomyocytes. It was found that barnidipine reduced I(Ca(L)) in a concentration and voltage dependent manner. Barnidipine induced a leftward shift of the steady-state inactivation curve of I(Ca(L)) [1].

In vivo: A previous study was conducted to investigate the influence of barnidipine treatment on early stage hypertension by determining the mesenteric and renal arteries as well as the kidney in L-NAME-induced hypertensive rats. Barnidipine was applied to rats after 2 weeks of L-NAME administration, and continued for the next 3 weeks concomitantly with L-NAME. Histopathological studies verified structural alterations in the arteries and the kidney. Moreover, a decrease in endothelial nitric oxide synthase expression was observed both in the arteries and kidney of hypertensive rats with barnidipine treatment [2].

Clinical trial: In patients with hypertension and type 2 diabetes mellitus, it was found that barnidipine treatment led to a significant reduction in blood pressure. Data recorded with ABPM also showed a similar trend. Barnidipine + losartan could reduce the levels of Hs-CRP, TNF-α, sVCAM-1, sICAM-1, and isoprostanes [3].

Reference:

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.