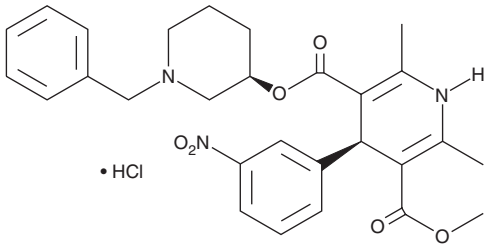
PRODUCT INFORMATION

Benidipine (hydrochloride)

Item No. 21607

CAS Registry No.: 91599-74-5
Formal Name: (4R)-*rel*-1,4-dihydro-2,6-dimethyl-4-(3-nitrophenyl)-3,5-pyridinedicarboxylic acid, 3-methyl 5-[(3R)-1-(phenylmethyl)-3-piperidinyl] ester, monohydrochloride
Synonyms: (±)-Benidipine, KW-3049
MF: $C_{28}H_{31}N_3O_6 \bullet HCl$
FW: 542.0
Purity: ≥98%
UV/Vis.: λ_{max}: 237, 356 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

Benidipine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the benidipine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Benidipine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of benidipine (hydrochloride) in ethanol is approximately 10 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Description

Benidipine is an orally bioavailable blocker of L-, T-, and N-type calcium channels.[1] In guinea pig ventricular cells benidipine has an IC_{50} of 2.7 nM for calcium currents, determined using whole cell voltage clamp electrophysiology.[2] It prevents oxidative stress dose-dependently *in vitro*, decreases blood pressure in spontaneously hypertensive rats (at 3 and 10 mg/kg), and is neuroprotective for neural stem cells after oxidative stress-induced injury.[3-5] Benidipine is also a competitive antagonist at mineralocorticoid receptors.[1]

References

1. Kosaka, H., Hirayama, K., Yoda, N., *et al.* The L-, N-, and T-type triple calcium channel blocker benidipine acts as an antagonist of mineralocorticoid receptor, a member of nuclear receptor family. *Eur. J. Pharmacol.* **635(1-3)**, 49-55 (2010).
2. Yamamoto, M., Gotoh, Y., Imaizumi, Y., *et al.* Mechanisms of long-lasting effects of benidipine on Ca current in guinea-pig ventricular cells. *Br. J. Pharmacol.* **100(4)**, 669-676 (1990).
3. Karasawa, A., Kubo, K., Shuto, K., *et al.* Antihypertensive effects of the new calcium antagonist benidipine hydrochloride in rats. *Arzneimittel-Forschung* **38(11A)**, 1684-1690 (1988).
4. Matsubara, M., Akizuki, O., Ikeda, J., *et al.* Benidipine, an anti-hypertensive drug, inhibits reactive oxygen species production in polymorphonuclear leukocytes and oxidative stress in salt-loaded stroke-prone spontaneously hypertensive rat. *Eur. J. Pharmacol.* **580(1-2)**, 201-213 (2008).
5. Choi, N.-Y., Choi, H., Park, H.-H., *et al.* Neuroprotective effects of amlodipine besylate and benidipine hydrochloride on oxidative stress-injured neural stem cells. *Brain Res.* **1551**, 1-12 (2014).

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
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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