

Product Data Sheet

Product Name: Eleclazine

Cat. No.: GC52221

Chemical Properties

Cas. No. 1443211-72-0

SMILES O=C1C2=CC(C3=CC=C(OC(F)(F)F)C=C3)=CC=C2OCCN1CC4=NC=CC=N4

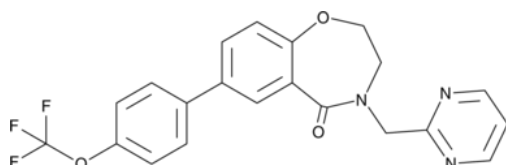
Formula $C_{21}H_{16}F_3N_3O_3$ M.Wt 415.4

Solubility DMF: 20 mg/ml, DMSO: 12 mg/ml, Ethanol: 5 mg/ml, PBS (pH 7.2): 0.16 mg/ml Storage -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 sizes: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines Atrial myocytes

Atrial myocytes isolated from rabbit hearts were treated with 15nM ISO in the Preparation Method absence or presence of 10μM Eleclazine for 5min, and late sodium current (late I_{Na}) was recorded using the whole-cell patch-clamp technique.

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Reaction
Conditions 10 μ M; 5min

Applications Treatment with Eleclazine reduced ISO-induced late sodium current density by 41% ($p < 0.05$).

Animal experiment [2]:

Animal models Yorkshire pigs

Preparation Method Yorkshire pigs were treated with 0.9mg/kg Eleclazine (intravenous infusion over 15min), and the incidence of epinephrine-induced APBs was analyzed at multiple time points thereafter (60, 90, 120, 150min).

Dosage form 0.9mg/kg; 120min; i.v.

Applications Treatment with Eleclazine reduced the incidence of 1-2 APBs induced by epinephrine by 83% and the incidence of ≥ 3 APBs by 75%.

References:

- [1] LIU X, REN L, YU S, et al. Late sodium current in synergism with Ca²⁺/calmodulin-dependent protein kinase II contributes to β -adrenergic activation-induced atrial fibrillation[J]. Philosophical Transactions of the Royal Society B: Biological Sciences, 2023, 378(1879).
- [2] FULLER H, JUSTO F, NEARING B D, et al. Eleclazine, a new selective cardiac late sodium current inhibitor, confers concurrent protection against autonomically induced atrial premature beats, repolarization alternans and heterogeneity, and atrial fibrillation in an intact porcine model[J]. Heart Rhythm, 2016, 13(8): 1679-1686.

Background

Eleclazine is a novel, highly selective inhibitor of the cardiac late sodium current, with an IC₅₀ value of $<1\mu\text{M}$ ^[1]. By reducing intracellular sodium and calcium overload, Eleclazine stabilizes the cardiac

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membrane potential and suppresses arrhythmias, and is commonly used in the treatment and research of arrhythmic conditions such as long QT syndrome and ventricular tachycardia^[2,3,4].

In vitro, Eleclazine (1 μ M) pretreatment of isolated rabbit hearts for 20min significantly accelerated intracellular Ca²⁺ decay and suppressed the induction of spatially discordant alternans (SDA) under normothermic conditions^[5]. Eleclazine (10 μ M) treatment of isolated rabbit atrial myocytes for 5min reduced the late sodium current density induced by isoproterenol (ISO, 15nM) by 41% ($p < 0.05$)^[6].

In vivo, Yorkshire pigs pretreated with Eleclazine (0.9mg/kg; intravenous infusion over 15min) showed an 83% reduction in the incidence of 1-2 beat atrial premature beats (APBs) and a 75% reduction in ≥ 3 APBs induced by epinephrine (2.0 μ g/kg, intravenous bolus over 1min) at 120min after Eleclazine administration^[7].

References:

- [1] BACIC D, CARNEIRO J S, BENTO A A, et al. Eleclazine, an inhibitor of the cardiac late sodium current, is superior to flecainide in suppressing catecholamine-induced ventricular tachycardia and T-wave alternans in an intact porcine model[J]. Heart Rhythm, 2017, 14(3): 448-454.
- [2] RAJAMANI S, LIU G, EL-BIZRI N, et al. The novel late Na⁺ current inhibitor, GS-6615 (eleclazine) and its anti-arrhythmic effects in rabbit isolated heart preparations[J]. British Journal of Pharmacology, 2016, 173(21): 3088-3098.
- [3] POTET F, EGECIOGLU D E, BURRIDGE P W, et al. GS-967 and eleclazine block sodium channels in human induced pluripotent stem cell-derived cardiomyocytes[J]. Molecular Pharmacology, 2020, 98(5): 540-547.
- [4] ZHANG Y, WANG H M, WANG Y Z, et al. Increment of late sodium currents in the left atrial myocytes and its potential contribution to increased susceptibility of atrial fibrillation in castrated male mice[J]. Heart Rhythm, 2017, 14(7): 1073-1080.
- [5] LEE H L, CHANG P C, WO H T, et al. Eleclazine suppresses ventricular fibrillation in failing rabbit hearts with ischemia-reperfusion injury undergoing therapeutic hypothermia[J]. Pharmacology, 2025, 110(3): 151-164.
- [6] LIU X, REN L, YU S, et al. Late sodium current in synergism with Ca²⁺/calmodulin-dependent protein kinase II contributes to β -adrenergic activation-induced atrial fibrillation[J]. Philosophical Transactions of the Royal Society B: Biological Sciences, 2023, 378(1879).
- [7] FULLER H, JUSTO F, NEARING B D, et al. Eleclazine, a new selective cardiac late sodium

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