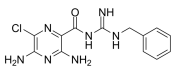
Na+/Ca2+ Exchanger

Na^+/Ca^{2+} exchanger (sodium-calcium exchanger , NCX) is an antiporter membrane protein that removes calcium from cells. It uses the energy that is stored in the electrochemical gradient of sodium (Na^+) by allowing Na^+ to flow down its gradient across the plasma membrane in exchange for the countertransport of calcium ions (Ca^{2+}). Na^+/Ca^{2+} exchanger removes a single calcium ion in exchange for the import of three sodium ions. Na^+/Ca^{2+} exchanger exists in many different cell types and animal species. Na^+/Ca^{2+} exchanger is considered one of the most important cellular mechanisms for removing Ca^{2+}. The Na^+/Ca^{2+} exchanger does not bind very tightly to Ca^{2+} (has a low affinity), but it can transport the ions rapidly (has a high capacity), transporting up to five thousand Ca^{2+} ions per second. The Na^+/Ca^{2+} exchanger also likely plays an important role in regaining the cell's normal calcium concentrations after an excitotoxic insult.

Na+/Ca2+ Exchanger Inhibitors & Activators

Benzamil
(Benzylamiloride) Cat. No.: HY-B1546

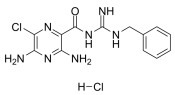
Benzamil (Benzylamiloride), an Amiloride analogue, is a **Na^+/Ca^{2+} exchanger (NCX)** inhibitor (IC_{50}~100 nM). Benzamil also is a non-selective **Deg/epithelial sodium channels (ENaC)** blocker, and can potentiate myogenic vasoconstriction.



Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Benzamil hydrochloride
(Benzylamiloride hydrochloride) Cat. No.: HY-B1546A

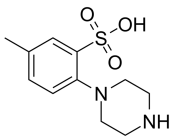
Benzamil hydrochloride (Benzylamiloride hydrochloride), an Amiloride analogue, is a Na^+/Ca^{2+} exchanger (NCX) inhibitor (IC_{50}~100 nM).



Purity: 99.60%
Clinical Data: Launched
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

Caldaret
(MCC-135) Cat. No.: HY-100298

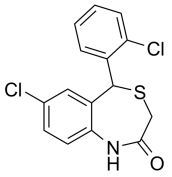
Caldaret is an intracellular **Ca^{2+}** handling modulator that acts through reverse mode **Na^+/Ca^{2+} exchanger** inhibition.



Purity: >98%
Clinical Data: Phase 2
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

CGP37157
Cat. No.: HY-15754

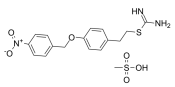
CGP37157 is a potent, selective inhibitor of **Na^+/Ca^{2+} exchanger**, inhibiting the Na^+-induced Ca^{2+}-release from guinea-pig heart mitochondria, with an IC_{50} of 0.8 μM.



Purity: 99.77%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

KB-R7943 mesylate
Cat. No.: HY-15415

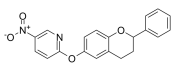
KB-R7943 mesylate is a widely used inhibitor of the reverse **Na^+/Ca^{2+} exchanger** (NCX_{rev}) with IC_{50} of 5.7±2.1 μM. KB-R7943 mesylate induces cancer cell death via activating the JNK pathway and blocking autophagic flux.



Purity: 99.16%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg

ORM-10103
Cat. No.: HY-128678

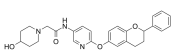
ORM-10103 is a specific inhibitor of the **Na+/Ca2+ exchanger (NCX)**, which decreases the NCX current with estimated IC_{50}s of 55 and 67 nM at -80 and at 20 mV, respectively.



Purity: 99.24%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg

ORM-10962
Cat. No.: HY-123785

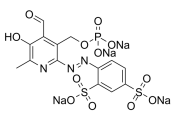
ORM-10962 is a potent, highly selective **sodium-calcium exchanger (NCX)** inhibitor, with IC_{50} values of 67 and 55 nM for the reverse and forward mode inhibition, respectively.



Purity: 99.74%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 50 mg

PPADS tetrasodium
Cat. No.: HY-101044

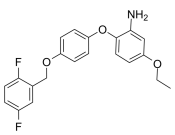
PPADS tetrasodiuma is a non-selective **P2X receptor** antagonist. PPADS tetrasodiuma blocks recombinant P2X1, -2, -3, -5 with IC_{50}s ranging from 1 to 2.6 μM. PPADS tetrasodiuma blocks native P2Y2-like (IC_{50}~0.9 mM) and recombinant P2Y4 (IC_{50}~15 mM) receptors.



Purity: ≥95.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg

SEA0400
Cat. No.: HY-15515

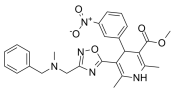
SEA0400 is a novel and selective inhibitor of the Na^+-Ca^{2+} exchanger (**NCX**), inhibiting Na^+-dependent Ca^{2+} uptake in cultured neurons, astrocytes, and microglia with IC_{50}s of from 5 to 33 nM.



Purity: 99.96%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 2 mg, 5 mg, 10 mg, 50 mg, 100 mg

SM-6586
Cat. No.: HY-19062

SM-6586 is a **calcium channel** antagonist and inhibitor of Na^+/H^+ and **Na^+/Ca^{2+} exchange transport**, potentially for the treatment of cerebrovasular diseases and hypertension.

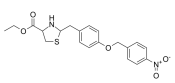


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

SN 6

Cat. No.: HY-107658

SN 6 is a selective **Na^+/Ca^{2+} exchanger (NCX)** inhibitor, and inhibits $^{45}Ca^{2+}$ uptake by NCX1, NCX2, and NCX3, with **IC_{50}**s of 2.9, 16, and 8.6 μM, respectively.



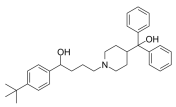
Purity: 99.70%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg

Terfenadine

((±)-Terfenadine; MDL-991)

Cat. No.: HY-B1193

Terfenadine ((±)-Terfenadine) is a potent open-channel blocker of **hERG** with an **IC_{50}** of 204 nM. Terfenadine, an **H1 histamine receptor** antagonist, acts as a potent apoptosis inducer in melanoma cells through modulation of **Ca^{2+}** homeostasis.



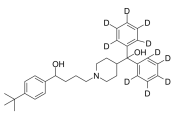
Purity: 99.93%
Clinical Data: Launched
Size: 10 mM × 1 mL, 100 mg

Terfenadine-d10

((±)-Terfenadine-d10; MDL-991-d10)

Cat. No.: HY-B1193S1

Terfenadine-d10 ((±)-Terfenadine-d10) is the deuterium labeled Terfenadine. Terfenadine ((±)-Terfenadine) is a potent open-channel blocker of **hERG** with an **IC_{50}** of 204 nM.

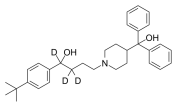


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Terfenadine-d3

Cat. No.: HY-B1193S

Terfenadine-d3 ((±)-Terfenadine-d3) is the deuterium labeled Terfenadine. Terfenadine ((±)-Terfenadine) is a potent open-channel blocker of **hERG** with an **IC_{50}** of 204 nM.

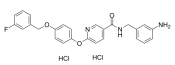


Purity: >98%
Clinical Data: No Development Reported
Size: 2000 μg, 5 mg, 10 mg, 25 mg

YM-244769 dihydrochloride

Cat. No.: HY-136182

YM-244769 dihydrochloride is a potent **Na^+/Ca^{2+} exchange** (**NCX**) inhibitor that preferentially inhibits NCX3 (IC_{50}=18 nM). Neuronal and renal protection.



Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg