Chloride Channel

Cl− Channels

Chloride channels belong to a superfamily of ion channels that permit passive passage of anions, mainly chloride, across cell membrane. Chloride channels perform important roles in the regulation of cellular excitability, in transepithelial transport, cell volume regulation, and acidification of intracellular organelles. Chloride channels represent a group of potential drug targets.

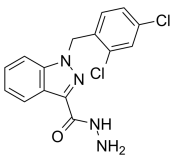
The chloride channel protein (ClC) family comprises both chloride (Cl^-) channels and chloride/proton (Cl^-/H^+) antiporters. In prokaryotes and eukaryotes, these proteins mediate the movement of Cl^- ions across the membrane. In eukaryotes, ClC proteins play a role in the stabilization of membrane potential, epithelial ion transport, hippocampal neuroprotection, cardiac pacemaker activity and vesicular acidification.

Chloride Channel Inhibitors, Activators & Modulators

Adjudin
(AF-2364)

Cat. No.: HY-18996

Adjudin is an extensively studied male contraceptive with a superior **mitochondria**-inhibitory effect. Adjudin is also a potent **Cl^- channel** blocker.

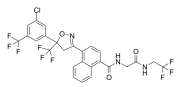


Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

Afoxolaner

Cat. No.: HY-16974

Afoxolaner is an orally active isoxazoline insecticide/acaricide against Ixodes scapularis in dogs.

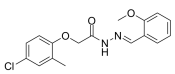


Purity: 99.53%
Clinical Data: Launched
Size: 10 mM × 1 mL, 10 mg, 25 mg, 50 mg, 100 mg

Ani9

Cat. No.: HY-119981

Ani9 is a potent and selective transmembrane protein 16A (TMEM16A, Anoctamin-1) blocker with an IC_{50} of 77 nM.

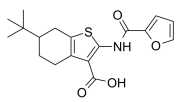


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

CaCCinh-A01

Cat. No.: HY-100611

CaCCinh-A01 is an inhibitor of both **TMEM16A** and **calcium-activated chloride channel** (**CaCC**) with IC_{50}s of 2.1 and 10 μM, respectively.



Purity: 99.79%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Chlorotoxin

Cat. No.: HY-P0173A

Chlorotoxin is a 36 amino-acid peptide from the venom of the Israeli scorpion Leiurus quinquestriatus with anticancer activity. Chlorotoxin is a **chloride channel** blocker.

MCMPCFTTDHQMARKCDDCCGGKGR GKCYGPQCLCR-NH_2(Disulfide bridge: Cys2-Cys19,Cys5-Cys28,,Cys16-Cys33,Cys20-Cys35)

Purity: ≥98.0%
Clinical Data: Phase 1
Size: 5 mg, 10 mg, 25 mg

Chlorotoxin TFA

Cat. No.: HY-P0173B

Chlorotoxin TFA is a peptide isolated from the venom of the scorpion Leiurus quinquestriatus, acts as a **chloride channel** blocker. Anti-cancer activity.

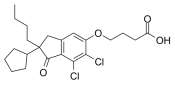
MCMPCFTTDHQMARKCDDCCGGKGR GKCYGPQCLCR-NH_2(Disulfide bridge: Cys2-Cys19,Cys5-Cys28,,Cys16-Cys33,Cys20-Cys35) (TFA salt)

Purity: 97.66%
Clinical Data: Phase 1
Size: 100 μg, 500 μg, 1 mg

DCPIB

Cat. No.: HY-103371

DCPIB is a selective, reversible and potent inhibitor of volume-regulated anion channels (**VRAC**). DCPIB voltage-dependently activates potassium channels TREK1 and TRAAK and inhibits TRESK, TASK1 and TASK3 (IC_{50}s of 0.14, 0.95, 50.72 μM, respectively).

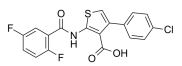


Purity: 99.93%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

DFBTA

Cat. No.: HY-146334

DFBTA is an orally active, potent and little brain penetrated **ANO1** (Calcium-activated chloride channel anoctamin-1) inhibitor, with an IC_{50} of 24 nM. DFBTA shows analgesic efficacy for inflammatory pain.

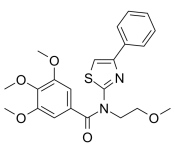


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Eact

Cat. No.: HY-103368

Eact is a selective and potent activator of **TMEM16A**, directly activates the TRPV1 channels in sensory nociceptors and produces itch, acute nociception and thermal hypersensitivity.

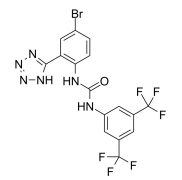


Purity: 98.28%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Endovion
(NS3728)

Cat. No.: HY-105917

Endovion (NS3728) is a pharmacological **anion channel inhibitor (like chloride channel)** and the specific **VRAC/VSOAC** blocker. Endovion (NS3728) is also an Anoctamin-1 (ANO 1) channel inhibitor.

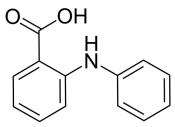


Purity: 99.27%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Fenamic acid

(N-Phenylanthranilic acid) Cat. No.: HY-W040265

Fenamic acid is a **chloride channel** blocker.

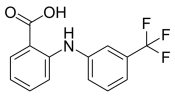


Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 50 mg

Flufenamic acid

Cat. No.: HY-B1221

Flufenamic acid is a non-steroidal anti-inflammatory agent, inhibits cyclooxygenase (**COX**), activates **AMPK**, and also modulates ion channels, blocking **chloride channels** and **L-type Ca^{2+} channels**, modulating non-selective cation channels (**NSC**), activating...

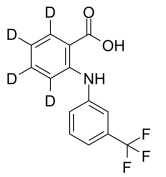


Purity: 99.85%
Clinical Data: Launched
Size: 10 mM × 1 mL, 100 mg

Flufenamic acid-d4

Cat. No.: HY-B1221S

Flufenamic acid-d4 is deuterium labeled Flufenamic acid.

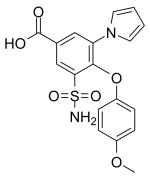


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

H100

Cat. No.: HY-100322

H100 is a **Cl^- transport** inhibitor, with partial effects against both the NaK2Cl cotransporter and the Band 3 anion exchanger, but no effect against KCl cotransporter, in human erythrocytes.

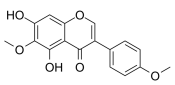


Purity: >98%
Clinical Data: Phase 1
Size: 1 mg, 5 mg

Irisolidone

Cat. No.: HY-N2412

Irisolidone is a major isoflavone found in Pueraria lobata flowers. Irisolidone exhibits potent hepatoprotective activity. Irisolidone shows the high efficacy for **volume-regulated anion channels (VRAC)** blockade (IC_{50}=9.8 μM).

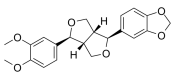


Purity: 99.66%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg

Kobusin

Cat. No.: HY-N5101

Kobusin is a bisepoxylignan isolated from the Pnonobio biondii Pamp. Kobusin is an activator of CFTR and CaCCgie chloride channels and a inhibitor of **ANO1/CaCC (calcium-activated chloride channel) channel**.

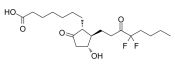


Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

Lubiprostone

(RU-0211; SPI-0211) Cat. No.: HY-B0679

Lubiprostone(SPI-0211;RU0211) is a gastrointestinal agent used for the treatment of idiopathic chronic constipation.

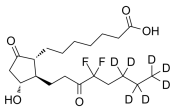


Purity: ≥98.0%
Clinical Data: Launched
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg

Lubiprostone-d7

(RU-0211-d7; SPI-0211-d7) Cat. No.: HY-B0679S

Lubiprostone-d7 (RU-0211-d7) is the deuterium labeled Lubiprostone. Lubiprostone (RU0211) is a gastrointestinal agent used for the treatment of idiopathic chronic constipation.

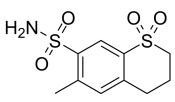


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Meticrane

Cat. No.: HY-B0908

Meticrane is a diuretic. Meticrane inhibits the reabsorption of **sodium** and **chloride** ions in the distal convoluted tubule. Meticrane is used to treat essential hypertension.

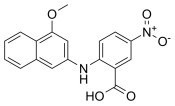


Purity: 98.25%
Clinical Data: Launched
Size: 10 mM × 1 mL, 100 mg

MONNA

Cat. No.: HY-100613

MONNA is a potent **transmembrane protein 16A (TMEM16A, Anoctamin-1)** blocker with an IC_{50} of 80 nM. MONNA induces vasorelaxation of rodent resistance arteries in presence or absence of chloride ions.

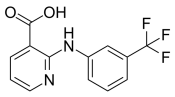


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Niflumic acid

Cat. No.: HY-B0493

Niflumic acid, a Ca2+-activated Cl- channel blocker, is an analgesic and anti-inflammatory agent used in the treatment of rheumatoid arthritis.

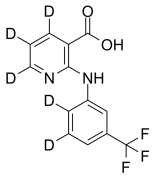


Purity: 99.84%
Clinical Data: Launched
Size: 10 mM × 1 mL, 100 mg

Niflumic Acid-d5

Cat. No.: HY-B0493S

Niflumic Acid-d5 is the deuterium labeled Niflumic acid. Niflumic acid, a Ca^{2+}-activated Cl^- channel blocker, is an analgesic and anti-inflammatory agent used in the treatment of rheumatoid arthritis.

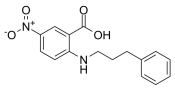


Purity: >98%
Clinical Data:
Size: 1 mg, 10 mg

NPPB

Cat. No.: HY-101012

NPPB is a blocker of the **outwardly rectifying chloride channel** (**ORCC**).

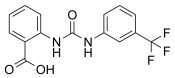


Purity: 99.83%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg

NS1652

Cat. No.: HY-100244

NS1652 is a reversible **anion conductance** inhibitor, blocks **chloride channel**, with an IC_{50} of 1.6 μM in human and mouse red blood cells.

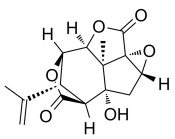


Purity: 99.89%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg, 25 mg

Picrotoxinin

Cat. No.: HY-B1494

Picrotoxinin, a potent convulsant, is a **chloride channel** blocker. Picrotoxinin is a noncompetitive **$GABA_A$ receptor** antagonist, which negatively modulates the action of GABA on $GABA_A$ receptors.



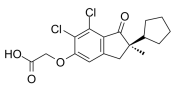
Purity: 97.03%
Clinical Data: No Development Reported
Size: 10 mg

R(+)-IAA-94

(R(+)-Methylindazone)

Cat. No.: HY-12693

R(+)-IAA-94 (R(+)-Methylindazone) is a potent indanyloxyacetic acid blocker of epithelial **chloride channels**. R(+)-IAA-94 inhibits Nef-sdAb19 (single-domain antibody) interaction and binds to negative factor (Nef).

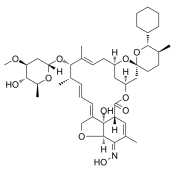


Purity: 99.03%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg

Selamectin

Cat. No.: HY-107212

Selamectin, a semi-synthetic macrocyclic lactone, is a potent parasiticide and anthelminthic. Selamectin activates **glutamate-gated chloride channels** in neurons and pharyngeal muscles to prevent **heartworm**, **Lymphatic filariae**, and **nematode** infection.



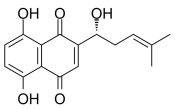
Purity: 99.89%
Clinical Data: Launched
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Shikonin

(C.I. 75535; Isoarnebin 4)

Cat. No.: HY-N0822

Shikonin is a major component of a Chinese herbal medicine named zicao. Shikonin is a potent **TMEM16A chloride channel** inhibitor with an IC_{50} of 6.5 μM. Shikonin is a specific **pyruvate kinase M2 (PKM2)** inhibitor and can also inhibit **TNF-α** and **NF-κB** pathway.



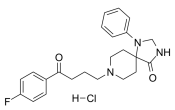
Purity: 99.80%
Clinical Data: No Development Reported
Size: 10 mg, 25 mg, 50 mg, 100 mg

Spiperone hydrochloride

(Spiroperidol hydrochloride)

Cat. No.: HY-B1371A

Spiperone hydrochloride (Spiroperidol hydrochloride) is a selective **dopamine D_2 receptor** (K_i values of 0.06 nM, 0.6 nM, 0.08 nM, ~350 nM, ~3500 nM for D_2, D_3, D_4, D_1 and D_5 receptors, respectively) and **5-HT_{2A}/5-HT_{1A} receptor** (K_is of 1 nM/49 nM)...

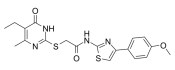


Purity: 99.10%
Clinical Data: No Development Reported
Size: 10 mg

T16Ainh-A01

Cat. No.: HY-100612

T16Ainh-A01, an aminophenylthiazole, is a potent **transmembrane protein 16A (TMEM16A)** inhibitor, inhibiting TMEM16A-mediated chloride currents with an IC_{50} value of ~1 μM. TMEM16A (ANO1) functions as a calcium-activated chloride channel (CaCC).

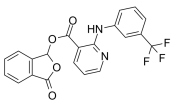


Purity: 98.11%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

Talniflumate

(BA 7602-06) **Cat. No.:** HY-103370

Talniflumate (BA 7602-06) is the prodrug of Niflumic acid (HY-B0493), exerting its activity in the body through conversion to niflumic acid by esterase. Talniflumate is an orally active **Ca^{2+}-activated Cl^- channel (CaCC)** blocker.



Purity: 99.67%
Clinical Data: Launched
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg