# P-glycoprotein

**P-gp; Pgp; Multidrug resistance protein 1; MDR1; ATP-binding cassette sub-family B member 1; ABCB1; Cluster of differentiation 243; CD243**

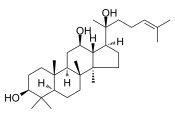
P-glycoprotein (P-gp) also known as multidrug resistance protein 1 (MDR1) is an important protein of the cell membrane that pumps many foreign substances out of cells. More formally, it is an ATP-dependent efflux pump with broad substrate specificity. P-gp is extensively distributed and expressed in the intestinal epithelium where it pumps xenobiotics (such as toxins or drugs) back into the intestinal lumen, in liver cells where it pumps them into bile ducts, in the cells of the proximal tubular of the kidney where it pumps them into urine-conducting ducts, and in the capillary endothelial cells comprising the blood–brain barrier and blood-testis barrier, where it pumps them back into the capillaries. Some cancer cells also express large amounts of P-gp, which renders these cancers multi-drug resistant. P-gp is an ATP-dependent drug efflux pump for xenobiotic compounds with broad substrate specificity. It is responsible for decreased drug accumulation in multidrug-resistant cells and often mediates the development of resistance to anticancer drugs. This protein also functions as a transporter in the blood–brain barrier.

# P-glycoprotein Inhibitors, Agonists, Activators & Modulators

## (20S)-Protopanaxadiol

**(20-Epiprotopanaxadiol; 20(S)-APPD)** Cat. No.: HY-N0797

20S-protopanaxadiol (aPPD) is a metabolite of ginseng saponins, inhibits **Akt activity** and induces apoptosis in various tumor cells.

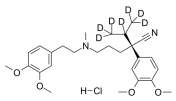


**Purity:** ≥98.0%
**Clinical Data:** No Development Reported
**Size:** 10 mM × 1 mL, 10 mg, 50 mg

## (R)-Verapamil D7 hydrochloride

**((R)-(+)-Verapamil D7 hydrochloride)** Cat. No.: HY-135336S

(R)-Verapamil D7 hydrochloride ((R)-(+)-Verapamil D7 hydrochloride) is a deuterium labeled (R)-Verapamil hydrochloride. (R)-Verapamil hydrochloride ((R)-(+)-Verapamil hydrochloride) is a **P-Glycoprotein** inhibitor.

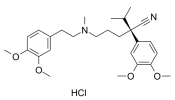


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg

## (R)-Verapamil hydrochloride

**((R)-(+)-Verapamil hydrochloride)** Cat. No.: HY-135336

(R)-Verapamil hydrochloride ((R)-(+)-Verapamil hydrochloride) is a **P-Glycoprotein** inhibitor. (R)-Verapamil hydrochloride blocks MRP1 mediated transport, resulting in chemosensitization of MRP1-overexpressing cells to anticancer drugs.

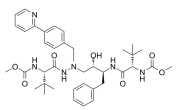


**Purity:** 98.54%
**Clinical Data:** Launched
**Size:** 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

## Atazanavir

**(BMS-232632)** Cat. No.: HY-17367

Atazanavir (BMS-232632), a highly selective **HIV-1 protease** inhibitor, is the first protease inhibitor approved for once-daily administration. Atazanavir (BMS-232632) is a substrate and inhibitor of **CYP3A4**, and an inhibitor and inducer of **P-glycoprotein (P-gp)**.

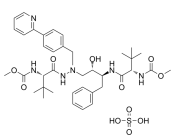


**Purity:** >98%
**Clinical Data:** Launched
**Size:** 1 mg, 5 mg

## Atazanavir sulfate

**(BMS-232632 sulfate)** Cat. No.: HY-17367A

Atazanavir (BMS-232632) sulfate, a highly selective **HIV-1 protease** inhibitor, is the first protease inhibitor approved for once-daily administration. Atazanavir sulfate is a substrate and inhibitor of **CYP3A4**, and an inhibitor and inducer of **P-glycoprotein (P-gp)**.

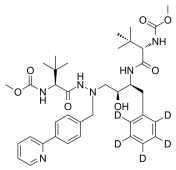


**Purity:** 99.94%
**Clinical Data:** Launched
**Size:** 10 mM × 1 mL, 10 mg, 50 mg, 100 mg

## Atazanavir-d5

Cat. No.: HY-17367S3

Atazanavir-d5 is the deuterium labeled Atazanavir. Atazanavir (BMS-232632), a highly selective **HIV-1 protease** inhibitor, is the first protease inhibitor approved for once-daily administration.

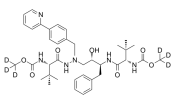


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 10 mg

## Atazanavir-d6

**(BMS-232632-d6)** Cat. No.: HY-17367S4

Atazanavir-d6 is deuterium labeled Atazanavir. Atazanavir (BMS-232632), a highly selective HIV-1 protease inhibitor, is the first protease inhibitor approved for once-daily administration.

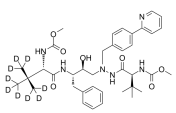


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Atazanavir-d9

**(BMS-232632-d9)** Cat. No.: HY-17367S2

Atazanavir-d9 (BMS-232632-d9) is the deuterium labeled Atazanavir. Atazanavir (BMS-232632), a highly selective **HIV-1 protease** inhibitor, is the first protease inhibitor approved for once-daily administration.

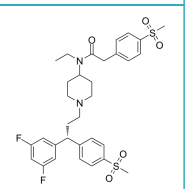


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg, 10 mg

## AZD-5672

Cat. No.: HY-119101

AZD-5672 is an orally active, potent, and selective **CCR5** antagonist ($IC_{50}$=0.32 nM). AZD-5672 shows moderate activity against the **hERG** ion channel (binding $IC_{50}$=7.3 μM).

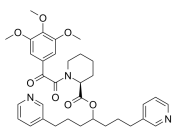


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

## Biricodar

**(VX-710)** Cat. No.: HY-13574A

Biricodar (VX-710) is a modulator of **P-glycoprotein** and **MRP-1**; shows effective chemosensitizing activity in multidrug resistant cells.

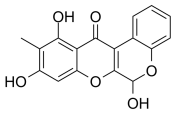


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Boeravinone B

Cat. No.: HY-N2947

Boeravinone B, a dual inhibitor of NorA bacterial efflux pump of Staphylococcus aureus and human P-Glycoprotein, reduces the biofilm formation and intracellular invasion of bacteria. Boeravinone B act as anti-aging and anti-apoptosis phyto-molecules during oxidative stress.

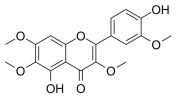


Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

## Chrysosplenetin

Cat. No.: HY-N1457

Chrysosplenetin is one of the polymethoxylated flavonoids in Artemisia annua L. (Compositae) and other several Chinese herbs. Chrysosplenetin inhibits **P-gp** activity and reverses the up-regulated P-gp and MDR1 levels induced by artemisinin (ART).

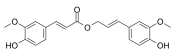


Purity: 99.52%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 20 mg

## Coniferyl ferulate

Cat. No.: HY-N1916

Coniferyl ferulate, a strong inhibitor of **glutathione S-transferase** (**GST**), reverses multidrug resistance and downregulates P-glycoprotein. Coniferyl ferulate shows strong inhibition of human placental GST with an $IC_{50}$ of 0.3μM.

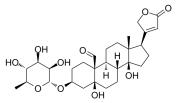


Purity: 98.56%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg

## Convallatoxin

Cat. No.: HY-N2453

Convallatoxin is a cardiac glycoside isolated from Adonis amurensis Regel et Radde. Convallatoxin ameliorates colitic inflammation via activation of **PPARγ** and suppression of **NF-κB**.

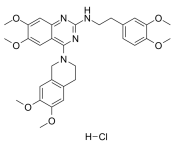


Purity: 98.66%
Clinical Data: No Development Reported
Size: 5 mg, 25 mg, 50 mg

## CP-100356 hydrochloride

Cat. No.: HY-108347

CP-100356 hydrochloride is an orally active dual **MDR1 (P-gp)/BCRP** inhibitor, with an $IC_{50}$s of 0.5 and 1.5 μM for inhibiting MDR1-mediated Calcein-AM transport and BCRP-mediated Prazosin transport, respectively.

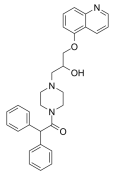


Purity: 99.68%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg

## Dofequidar

Cat. No.: HY-17013

Dofequidar(MS-209) is a novel quinoline compound, which can reverse P-glycoprotein (P-gp)-mediated MDR.



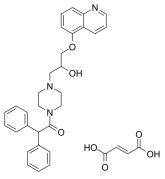
Purity: >98%
Clinical Data: Phase 1
Size: 1 mg, 5 mg

## Dofequidar fumarate

(MS-209)

Cat. No.: HY-17013A

Dofequidar fumarate(MS-209 fumarate), an orally active quinoline compound, has been reported to overcome MDR by inhibiting ABCB1/P-gp, ABCC1/MDR-associated protein 1, or both.



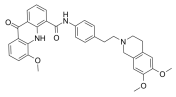
Purity: 98.40%
Clinical Data: Phase 1
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

## Elacridar

(GF120918; GW0918; GG918; GW120918)

Cat. No.: HY-50879

Elacridar (GF120918) is a potent **P-glycoprotein (Pgp)** and **BCRP** inhibitor.



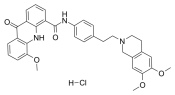
Purity: 99.80%
Clinical Data: No Development Reported
Size: 10 mg, 50 mg, 100 mg, 200 mg, 500 mg

## Elacridar hydrochloride

(GF120918A)

Cat. No.: HY-50880

Elacridar hydrochloride (GF120918A) is a potent **P-glycoprotein (Pgp)** and **BCRP** inhibitor.



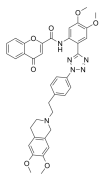
Purity: 99.73%
Clinical Data: No Development Reported
Size: 10 mg, 50 mg, 100 mg

## Encequidar

(HM30181; HM30181A)

Cat. No.: HY-13646

Encequidar (HM30181; HM30181A) is a potent and selective inhibitor of **P-glycoprotein**.



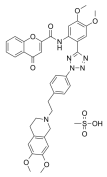
Purity: ≥98.0%
Clinical Data: Phase 2
Size: 5 mg, 10 mg, 50 mg, 100 mg

## Encequidar mesylate

**(HM30181 mesylate; HM30181A mesylate)**

Cat. No.: HY-13646A

Encequidar mesylate (HM30181 mesylate; HM30181A mesylate) is a competitive and potent **P-glycoprotein** inhibitor.

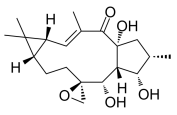


**Purity:** 99.90%
**Clinical Data:** Phase 1
**Size:** 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

## Epoxylathyrol

Cat. No.: HY-N0425

Epoxylathyrol, an epoxylathyrane derivative isolated from the Euphorbia boetica, is a **P-glycoprotein (P-gp)** inhibitor. Epoxylathyrol is a P-gp-mediated multidrug resistance (MDR) reverser.

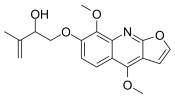


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg, 25 mg

## Evodine

Cat. No.: HY-N0689

Evodine, the major limonoid of Evodiae Fuctus, is a potent **P-gp** inhibitor. Evodine has protection against glutamateinduced toxicity by preserving the antioxidant defense system.



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

## FD 12-9

**(Ac12Az9)**

Cat. No.: HY-128685

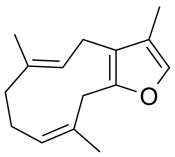
FD 12-9 is a flavonoid dimer, acts as a dual inhibitor of **P-gp** and **BCRP**, with $EC_{50}$s of 285 nM and 0.9 nM, respectively. Anti-glioblastoma activity.

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

## Furanodiene

Cat. No.: HY-126940

Furanodiene is a natural terpenoid isolated from Rhizoma Curcumae. Furanodiene plays anti-cancer effects through anti-angiogenesis and inducing **ROS** production, DNA strand breaks and **apoptosis**.



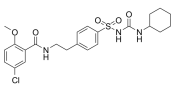
**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg, 25 mg

## Glibenclamide

**(Glyburide)**

Cat. No.: HY-15206

Glibenclamide (Glyburide) is an orally active ATP-sensitive $K^+$ channel ($K_{ATP}$) inhibitor and can be used for the research of diabetes and obesity. Glibenclamide inhibits **P-glycoprotein**.

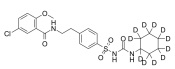


**Purity:** 99.79%
**Clinical Data:** Launched
**Size:** 10 mM × 1 mL, 500 mg, 1 g, 5 g

## Glyburide-d11

Cat. No.: HY-15206S

Glyburide-d11 is the deuterium labeled Glibenclamide. Glibenclamide (Glyburide) is an orally active ATP-sensitive $K^+$ channel ($K_{ATP}$) inhibitor and can be used for the research of diabetes and obesity. Glibenclamide inhibits **P-glycoprotein**.



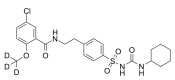
**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 10 mg

## Glyburide-d3

**(Glyburide-d3)**

Cat. No.: HY-15206S1

Glyburide-d3 (Glyburide-d3) is the deuterium labeled Glibenclamide. Glibenclamide (Glyburide) is an orally active ATP-sensitive $K^+$ channel ($K_{ATP}$) inhibitor and can be used for the research of diabetes and obesity. Glibenclamide inhibits **P-glycoprotein**.

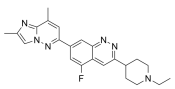


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## HTT-D3

Cat. No.: HY-143792

HTT-D3 is a potent and orally active **huntingtin (HTT)** splicing modulator. HTT-D3 acts by promoting the inclusion of a pseudoexon containing a premature termination codon (stop-codon psiExon), leading to HTT mRNA degradation and reduction of HTT levels.

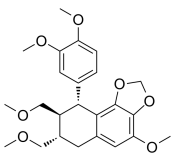


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Hypophyllanthin

Cat. No.: HY-N4108

Hypophyllanthin is a major lignan in Phyllanthus spp, with strong anti-inflammatory activity. Hypophyllanthin directly inhibits **P-glycoprotein (P-gp)** activity and did not interfere with multidrug resistance protein 2 (MRP2) activity.

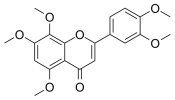


**Purity:** 98.40%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Isosinensetin

Cat. No.: HY-N1941

Isosinensetin, a polymethoxylated flavone extracted from pericarpium citri reticulatae viride, exhibits inhibition on **P-glycoprotein (P-gp)** in MDR1-MDCKII cells.



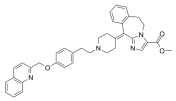
**Purity:** 99.26%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg, 20 mg

## Laniquidar

**(R101933)**

Cat. No.: HY-132189

Laniquidar (R101933) is a noncompetitive, third generation **P-glycoprotein (P-gp)** inhibitor with an $IC_{50}$ of 0.51 μM. Laniquidar can be used for modulating multidrug resistance transporters.

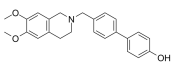


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## MC70

Cat. No.: HY-113805

MC70 is a potent and non-selective **P-glycoprotein (P-gp)** inhibitor with an $EC_{50}$ of 0.69 μM. MC70 is an **ABC transporters** inhibitor and anticancer agent. MC70 interacts with ABCB1, ABCG2 and ABCC1.

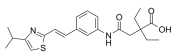


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## MCI826

Cat. No.: HY-U00247

MCI826 is a **P-glycoprotein** (**P-gp**) antagonist.



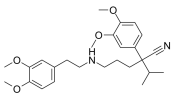
**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Norverapamil

**((±)-Norverapamil; D591)**

Cat. No.: HY-135328

Norverapamil ((±)-Norverapamil), an N-demethylated metabolite of Verapamil, is a **L-type calcium channel** blocker and a **P-glycoprotein (P-gp)** function inhibitor.



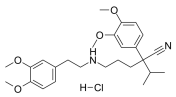
**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Norverapamil hydrochloride

**((±)-Norverapamil hydrochloride; D591 hydrochloride)**

Cat. No.: HY-100750

Norverapamil hydrochloride ((±)-Norverapamil hydrochloride), an N-demethylated metabolite of Verapamil, is a **L-type calcium channel** blocker and a **P-glycoprotein (P-gp)** function inhibitor.



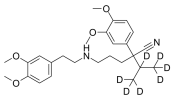
**Purity:** 98.26%
**Clinical Data:** No Development Reported
**Size:** 10 mM × 1 mL, 2 mg, 5 mg, 10 mg, 25 mg

## Norverapamil-d7

**((±)-Norverapamil-d7; D591-d7)**

Cat. No.: HY-135328S

Norverapamil-d7 ((±)-Norverapamil-d7) is a deuterium labeled Norverapamil ((±)-Norverapamil). Norverapamil, an N-demethylated metabolite of Verapamil, is a L-type calcium channel blocker and a P-glycoprotein (P-gp) function inhibitor.

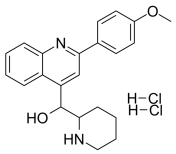


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## NSC23925

Cat. No.: HY-19626

NSC23925 is a novel, selective and effective **P-glycoprotein** (**Pgp**) inhibitor.



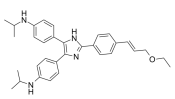
**Purity:** 99.48%
**Clinical Data:** No Development Reported
**Size:** 10 mM × 1 mL, 5 mg, 10 mg, 25 mg

## ONT-093

**(OC 144-093; OC 144093)**

Cat. No.: HY-15134

ONT-093 is a potent inhibitor of **P-glycoprotein pump**. ONT-093 has the potential for the research cancer diseases.

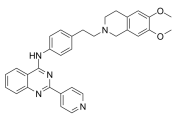


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp inhibitor 1

Cat. No.: HY-101791

P-gp inhibitor 1 is a novel inhibitor reversing **P-glycoprotein**-mediated multidrug resistance.

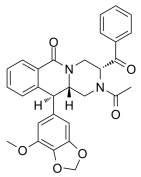


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp inhibitor 2

Cat. No.: HY-N144114

P-gp inhibitor 2 is a potent **P-gp** inhibitor. P-gp inhibitor 2 shows reverse Doxorubicin resistance ($IC_{50}$=0.22 μM) in P-gp overexpressing human colorectal carcinoma cells (SW600 Ad300).

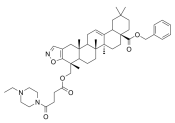


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp inhibitor 3

Cat. No.: HY-144366

P-gp inhibitor 3 is an effective **P-glycoprotein** (P-gp) inhibitor. P-gp inhibitor 3 inhibits the efflux function of P-gp by activating P-gp ATPase. P-gp inhibitor 3 has relatively stronger multidrug resistance (MDR) reversal ability and enhances the anti-tumor activity of Paclitaxel.

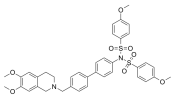


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp inhibitor 4

Cat. No.: HY-146391

P-gp inhibitor 4 (Compound 8b) is a selective **P-glycoprotein** modulator with an $EC_{50}$ of 94 nM. P-gp inhibitor 4 increases drug transport across gastro-intestinal barrier and recovers doxorubicin toxicity in multidrug resistant cancer cells.

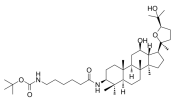


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp modulator 1

Cat. No.: HY-112912

P-gp modulator 1 is a high affinity, orally available modulator of **P-glycoprotein (Pgp)**, can reverse the Pgp-mediated multidrug resistance ((MDR).

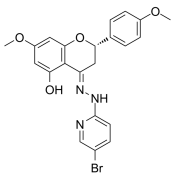


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp modulator 2

Cat. No.: HY-146117

P-gp modulator 2 (Compound 27) is a potent, competitive, allosteric **P-glycoprotein (P-gp)** modulator.

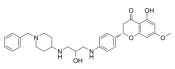


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## P-gp modulator 3

Cat. No.: HY-146118

P-gp modulator 3 (Compound 37) is a potent, competitive, allosteric **P-glycoprotein (P-gp)** modulator.



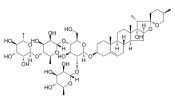
**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Paris saponin VII

**(Chonglou Saponin VII)**

Cat. No.: HY-N3584

Paris saponin VII (Chonglou Saponin VII) is a steroidal saponin isolated from the roots and rhizomes of Trillium tschonoskii Maxim. Paris saponin VII-induced apoptosis in K562/ADR cells is associated with **Akt/MAPK** and the inhibition of **P-gp**.

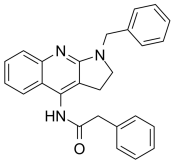


**Purity:** 99.13%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg

## PGP-4008

Cat. No.: HY-119823

PGP-4008 is a specific **P-glycoprotein** (**Pgp**) inhibitor. PGP-4008 inhibits tumor growth in a murine syngeneic Pgp-mediated multiple drug resistance (MDR) solid tumor model when given in combination with Doxorubicin.

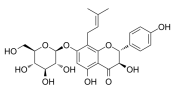


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Phellamurin

Cat. No.: HY-N3085

Phellamurin is a plant flavonone glycoside from the leaves of Phellodendron amurense and inhibits intestinal **P-glycoprotein**. Phellamurin also inhibits egg laying by Papilio protenor. Phellamurin induces cells **apoptosis** and has anti-tumor activity.



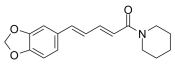
**Purity:** ≥96.0%
**Clinical Data:** No Development Reported
**Size:** 1 mg

## Piperine

**(Bioperine; 1-Piperoylpiperidine)**

Cat. No.: HY-N0144

Piperine, a natural alkaloid isolated from Piper nigrum L, inhibits **P-glycoprotein** and **CYP3A4** activities with an $IC_{50}$ value of 61.94±0.054 μg/mL in HeLa cell.

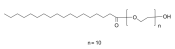


**Purity:** 98.88%
**Clinical Data:** Phase 2
**Size:** 10 mM × 1 mL, 200 mg, 1 g, 5 g

## Polyoxyethylene stearate

**(POES)** Cat. No.: HY-101530

Polyoxyethylene stearate (POES) is a non-ionic emulsifying agent.

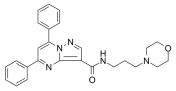


Purity: >98%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 200 mg, 1 g, 5 g

## Reversan

**(CBLC4H10)** Cat. No.: HY-107643

Reversan (CBLC4H10) is a potent and nontoxic **multidrug resistance-associated protein 1 (MRP1)** and **P-glycoprotein (Pgp)** inhibitor.

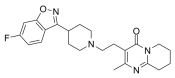


Purity: ≥97.0%
Clinical Data: No Development Reported
Size: 2 mg, 5 mg

## Risperidone

**(R 64 766)** Cat. No.: HY-11018

Risperidone is a serotonin **5-HT$_2$ receptor** blocker, **P-Glycoprotein** inhibitor and potent **dopamine D$_2$ receptor** antagonist, with **K$_i$s** of 4.8, 5.9 nM for 5-HT$_{2A}$ and dopamine D$_2$ receptor, respectively.

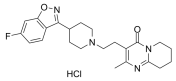


Purity: 98.01%
Clinical Data: Launched
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg, 500 mg

## Risperidone hydrochloride

**(R 64 766 hydrochloride)** Cat. No.: HY-11018A

Risperidone hydrochloride (R 64 766 hydrochloride) **5-HT$_2$ receptor** blocker, **P-Glycoprotein** inhibitor and potent **dopamine D$_2$ receptor** antagonist, with **K$_i$s** of 4.8, 5.9 nM for 5-HT$_{2A}$ and dopamine D$_2$ receptor, respectively.

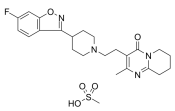


Purity: >98%
Clinical Data: Launched
Size: 1 mg, 5 mg

## Risperidone mesylate

**(R 64 766 mesylate)** Cat. No.: HY-11018B

Risperidone mesylate(R 64 766 mesylate) is a serotonin **5-HT$_2$ receptor** blocker, **P-Glycoprotein** inhibitor and potent **dopamine D$_2$ receptor** antagonist, with **K$_i$s** of 4.8, 5.9 nM for 5-HT$_{2A}$ and dopamine D$_2$ receptor, respectively.

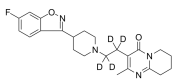


Purity: >98%
Clinical Data: Launched
Size: 1 mg, 5 mg

## Risperidone-d4

**(R 64 766-d4)** Cat. No.: HY-110232

Risperidone-d4 (R 64 766-d4) is the deuterium labeled Risperidone. Risperidone is a serotonin **5-HT$_2$ receptor** blocker, **P-Glycoprotein** inhibitor and potent **dopamine D$_2$ receptor** antagonist, with **K$_i$s** of 4.8, 5.9 nM for 5-HT$_{2A}$ and dopamine D$_2$ receptor, respectively.

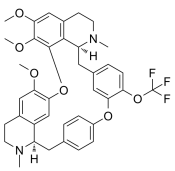


Purity: >98%
Clinical Data: No Development Reported
Size: 2.5 mg, 5 mg

## RMS3

Cat. No.: HY-146096

RMS3, a tetrandrine analogue, is a potent **P-glycoprotein (P-gp)** inhibitor. RMS3 has markedly antiproliferative and cytotoxic effects on cancer cells. RMS3 causes PARP cleavage, a marker for cells undergoing **apoptosis**. RMS3 has strong anticancer property.

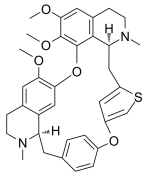


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

## RMS5

Cat. No.: HY-146097

RMS5, a tetrandrine analogue, is a potent **P-glycoprotein (P-gp)** inhibitor. RMS5 markedly antiproliferative and cytotoxic effects on cancer cells. RMS5 slightly diminishes the expression of the anti-apoptotic Bcl-2 family proteins Bcl-XL and Mcl-1.

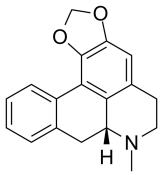


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

## Roemerine

**((-)-Roemerine)** Cat. No.: HY-121793

Roemerine, an aporphine alkaloid, isolated from the leaves of Annona senegalensis, functions by interacting with **P-glycoprotein**. Roemerine reverses the multidrug-resistance phenotype with cultured cells.

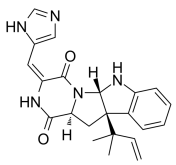


Purity: ≥99.0%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg

## Roquefortine C

Cat. No.: HY-N6748

Roquefortine C, a fungal cyclopeptide isolated from Penicillium roquefortii, activates **P-gp** and also inhibits **P450-3A** and other haemoproteins. Roquefortine C has bacteriostatic activities against Gram-positive bacteria.

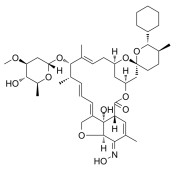


Purity: >98%
Clinical Data: No Development Reported
Size: 500 μg, 1 mg

## 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.

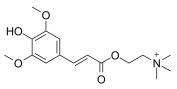


Purity: 99.89%
Clinical Data: Launched
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

## Sinapine

Cat. No.: HY-N5077

Sinapine is an alkaloid isolated from seeds of the cruciferous species. Sinapine exhibits anti-inflammatory, anti-oxidant, anti-tumor, anti-angiogenic and radio-protective effects.

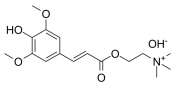


Purity: 99.87%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg

## Sinapine hydroxide

Cat. No.: HY-N5077B

Sinapine hydroxide is an alkaloid isolated from seeds of the cruciferous species. Sinapine hydroxide exhibits anti-inflammatory, anti-oxidant, anti-tumor, anti-angiogenic and radio-protective effects.

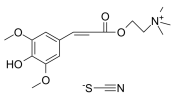


Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

## Sinapine thiocyanate

Cat. No.: HY-N0450

Sinapine thiocyanate is an alkaloid isolated from seeds of the cruciferous species. Sinapine thiocyanate exhibits anti-inflammatory, anti-oxidant, anti-tumor, anti-angiogenic and radio-protective effects.



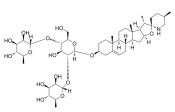
Purity: 99.42%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 25 mg, 50 mg, 100 mg, 200 mg

## Solamargine

(Solamargin; δ-Solanigrine)

Cat. No.: HY-N0069

Solamargine, a derivative from the steroidal solasodine in Solanum species, exhibits anticancer activities in numerous types of cancer. Solamargine induces non-selective cytotoxicity and **P-glycoprotein** inhibition.



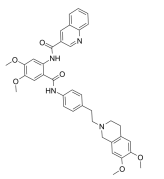
Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

## Tariquidar

(XR9576)

Cat. No.: HY-10550

Tariquidar (XR9576) is a potent and specific inhibitor of **P-glycoprotein** (**P-gp**) with the high affinity ($K_d$=5.1 nM).



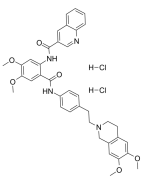
Purity: 98.60%
Clinical Data: Phase 3
Size: 5 mg, 10 mg, 50 mg, 100 mg

## Tariquidar dihydrochloride

(XR9576 dihydrochloride)

Cat. No.: HY-110377

Tariquidar dihydrochloride (XR9576 dihydrochloride) is a potent and specific inhibitor of **P-glycoprotein** (**P-gp**) with the high affinity ($K_d$=5.1 nM).



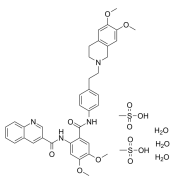
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

## Tariquidar methanesulfonate, hydrate

(XR9576 methanesulfonate, hydrate)

Cat. No.: HY-10550A

Tariquidar methanesulfonate, hydrate (XR9576 methanesulfonate, hydrate) is a potent and specific inhibitor of **P-glycoprotein** (**P-gp**) with a $K_d$ of 5.1 nM.

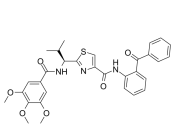


Purity: 98.38%
Clinical Data: Phase 3
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg

## TTT-28

Cat. No.: HY-101511

TTT-28 is a synthesized thiazole-valine peptidomimetic, a novel selective inhibitor of ABCB1 (P-gp/MDR1) with high efficacy and low toxicity, which reverses the ATP-binding cassette sub-family B member 1 (**ABCB1**)-mediated Multidrug resistance (MDR) by selectively...



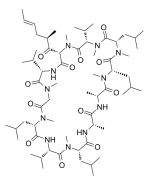
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

## Valspodar

(PSC 833)

Cat. No.: HY-17384

Valspodar (PSC 833) is a selective **P-glycoprotein** inhibitor that has been used as an experimental cancer treatment and chemosensitizer.

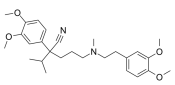


Purity: 99.27%
Clinical Data: Phase 3
Size: 1 mg, 5 mg, 10 mg

## Verapamil

**((±)-Verapamil; CP-16533-1)** Cat. No.: HY-14275

Verapamil ((±)-Verapamil) is a **calcium channel** blocker and a potent and orally active first-generation **P-glycoprotein (P-gp)** inhibitor. Verapamil also inhibits **CYP3A4**. Verapamil has the potential for high blood pressure, heart arrhythmias and angina research.

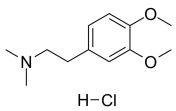


**Purity:** 99.96%
**Clinical Data:** Phase 4
**Size:** 10 mM × 1 mL, 50 mg

## Verapamil EP Impurity C hydrochloride

**(NSC-609249 hydrochloride)** Cat. No.: HY-136589

NSC-609249 hydrochloride is an **impurity** of Verapamil (HY-14275). Verapamil is a **calcium channel** blocker and a potent and orally active first-generation **P-glycoprotein (P-gp)** inhibitor.

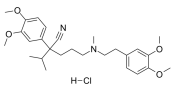


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Verapamil hydrochloride

**((±)-Verapamil hydrochloride; CP-16533-1 hydrochloride)** Cat. No.: HY-A0064

Verapamil hydrochloride ((±)-Verapamil hydrochloride) is a **calcium channel** blocker and a potent and orally active first-generation **P-glycoprotein (P-gp)** inhibitor. Verapamil hydrochloride also inhibits **CYP3A4**.

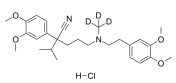


**Purity:** 99.98%
**Clinical Data:** Launched
**Size:** 10 mM × 1 mL, 500 mg, 1 g, 5 g

## Verapamil-d3 hydrochloride ((±)-Verapamil-d3 hydrochloride; CP-16533-1-d3 hydrochloride)

Cat. No.: HY-A0064S

Verapamil-d3 ((±)-Verapamil-d3) hydrochloride is the deuterium labeled Verapamil hydrochloride. Verapamil hydrochloride ((±)-Verapamil hydrochloride) is a **calcium channel** blocker and a potent and orally active first-generation **P-glycoprotein (P-gp)** inhibitor.

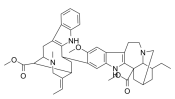


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Voacamine

Cat. No.: HY-N6932

Voacamine, an indole alkaloid, exhibits potent **cannabinoid CB1 receptor** antagonistic activity. Voacamine also inhibits **P-glycoprotein** (**P-gp**) action in multidrug-resistant tumor cells.

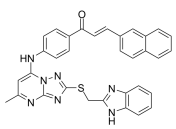


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg

## WS-898

Cat. No.: HY-139848

WS-898 is a highly effective **ABCB1** inhibitor capable of reversing paclitaxel (PTX) resistance in drug-resistant SW620/Ad300, KB-C2, and HEK293/ABCB1 cells ($IC_{50}$ = 5.0, 3.67, and 3.68 nM, respectively).

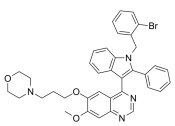


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## YS-370

Cat. No.: HY-132866

YS-370 (compound 44) is a potent, high selective, and orally active inhibitor of P-glycoprotein (**P-gp**). YS-370 stimulates the P-gp ATPase activity and has moderate inhibition against CYP3A4.

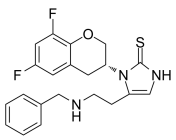


**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 1 mg, 5 mg

## Zamicastat

**(BIA 5-1058)** Cat. No.: HY-106004

Zamicastat (BIA 5-1058) is a **dopamine β-hydroxylase (DBH)** inhibitor and can cross the blood-brain barrier (BBB) to cause central as well as peripheral effects.

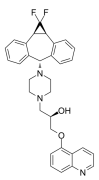


**Purity:** 95.36%
**Clinical Data:** Phase 2
**Size:** 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

## Zosuquidar

**(RS 33295-198; LY-335979)** Cat. No.: HY-15255

Zosuquidar (LY335979) is an inhibitor of **P-glycoprotein** with a $K_i$ value of 59 nM.

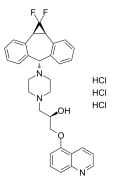


**Purity:** 98.33%
**Clinical Data:** Phase 3
**Size:** 1 mg, 5 mg

## Zosuquidar trihydrochloride (RS 33295-198 trihydrochloride; LY-335979 trihydrochloride)

Cat. No.: HY-50671

Zosuquidar (RS 33295-198) trihydrochloride is an inhibitor of **P-glycoprotein** with a $K_i$ value of 59 nM.



**Purity:** 99.79%
**Clinical Data:** Phase 3
**Size:** 10 mg, 50 mg, 100 mg