Glutathione Peroxidase

Glutathione peroxidases (GPx) are a family of enzymes with the ability to reduce organic and inorganic hydroperoxides to the corresponding alcohols using glutathione or thioredoxin as an electron donor. These enzymes promote hydrogen peroxide metabolism and protect cell membrane structure and function from oxidative damage. Dysregulated GPx expression is connected with severe pathologies, including obesity and diabetes. GPx1 has been reported to be involved in both pro- and anticancer effects in different tumor models.

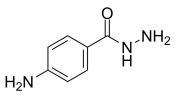
In mammals, the GPxs family consists of eight members (GPx1-GPx8) identified so far; five of them (GPx1-GPx4 and GPx6) contain selenocysteine in the catalytic center and the other three are cysteine-containing proteins. GPx1 is one of the most critical members of the GPxs family that catalytically reduces hydrogen peroxide to produce water. The function of GPx3 is to scavenge H2O2 and lipoperoxides in the plasma to reduce systematic oxidative stress and to maintain the bioavailability of vascular nitric oxide. Gpx4 is an essential mammalian glutathione peroxidase, which protects cells against detrimental lipid peroxidation and governs a novel form of regulated necrotic cell death, called ferroptosis.

Glutathione Peroxidase Inhibitors & Activators

4-Aminobenzohydrazide

(p-Aminobenzohydrazide; p-Aminobenzoic acid hydrazide) Cat. No.: HY-B0880

4-Aminobenzohydrazide is an irreversible MPO myeloperoxidase inhibitor with an IC_{50} of 0.3 μM. It is used for the research of subacute stroke.

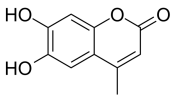


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

4-Methylesculetin

Cat. No.: HY-N4288

4-Methylesculetin is an orally active natural coumarin derivative, with potent anti-oxidant and anti-inflammatory activities. 4-Methylesculetin inhibits **myeloperoxidase** activity and reduces IL-6 level.

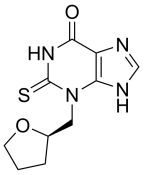


Purity: 98.32%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 100 mg

AZD5904

Cat. No.: HY-111341

AZD5904 is a selective and irreversible inhibitor of human **Myeloperoxidase** (**MPO**) with an IC_{50} of 140 nM and has similar potency in mouse and rat.

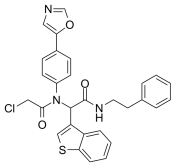


Purity: 99.78%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GPX4-IN-3

Cat. No.: HY-141809

GPX4-IN-3 (26a) is a potent **glutathione peroxidase 4 (GPX4)** inhibitor as a selective **ferroptosis** inducer. GPX4-IN-3 (26a) exhibits 71.7% inhibition for GPX4 with 1 μM.

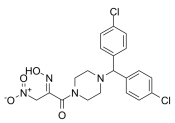


Purity: 99.69%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

JKE-1674

Cat. No.: HY-138153

JKE-1674 is an orally active glutathione peroxidase 4 (**GPX4**) inhibitor and an active metabolite of **GPX4** inhibitor ML-210. JKE-1674, an analog of ML-210 in which the nitroisoxazole ring is replaced with an α-nitroketoxime. JKE-1674 can convert into a nitrile oxide JKE-1777.

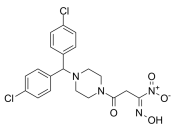


Purity: 98.01%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg

JKE-1716

Cat. No.: HY-139001

JKE-1716 is a potent and selective nitrolic acid-containing **GPX4** inhibitor. JKE-1716 is able of inducing **ferroptosis** selectively through covalent **GPX4** inhibition.

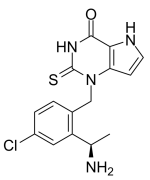


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Mitiperstat

Cat. No.: HY-145581

Mitiperstat is the potent inhibitor of myeloperoxidase (**MPO**). Mitiperstat is particularly useful in the research of prophylaxis of cardiovascular disorders such as heart failure and coronary artery disease related conditions (extracted from patent US20160152623A1).

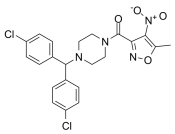


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

ML-210

Cat. No.: HY-100003

ML-210 is a selective and covalent **glutathione peroxidase 4 (GPX4)** inhibitor with an EC_{50} of 30 nM. ML-210 binds the GPX4 selenocysteine residue. ML-210 has anti-cancer activity.

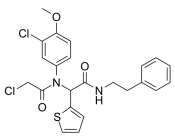


Purity: 99.92%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

ML162

Cat. No.: HY-100002

ML162 is a covalent **glutathione peroxidase 4 (GPX4)** inhibitor. ML162 has a selective lethal effect on mutant RAS oncogene-expressing cell lines.

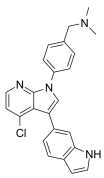


Purity: 99.52%
Clinical Data: No Development Reported
Size: 5 mg

MPO-IN-1

Cat. No.: HY-139915

MPO-IN-1 is a potent, orally active, and irreversible indole-containing inhibitor of myeloperoxidase (**MPO**). MPO-IN-1 has IC_{50}s of 2.6 μM and 5.3 μM for MPO and thyroid peroxidase (TPO), respectively. MPO-IN-1 inhibits **MPO** activity in an acute mouse model of inflammation.

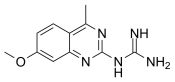


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

MPO-IN-28

Cat. No.: HY-115486

MPO-IN-28 (Compound 28) is a **myeloperoxidase (MPO)** inhibitor with an IC_{50} of 44 nM.

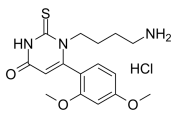


Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg

MPO-IN-3

Cat. No.: HY-145197

MPO-IN-3 is a potent **myeloperoxidase (MPO)** inhibitor (WO2013068875A1, example 191). Myeloperoxidase (MPO) is a heme-containing enzyme belonging to the peroxidase superfamily.

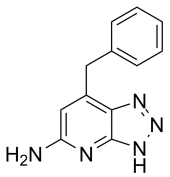


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

MPO-IN-4

Cat. No.: HY-146651

MPO-IN-4 (compound 12) is a potent and selective **myeloperoxidase (MPO)** inhibitor with an IC_{50}0 of 25 nM. MPO-IN-4 has no effect on methyl guanine methyl transferase (MGMT).

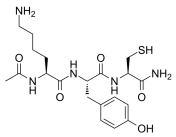


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

N-Acetyl lysyltyrosylcysteine amide

Cat. No.: HY-125039

N-Acetyl lysyltyrosylcysteine amide is a potent, reversible, specific, and non-toxic tripeptide inhibitor of **myeloperoxidase (MPO)**. N-Acetyl lysyltyrosylcysteine amide effectively inhibits MPO generation of toxic oxidants in vivo.

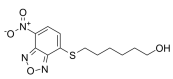


Purity: 99.81%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg

NBDHEX

Cat. No.: HY-135318

NBDHEX is a potent **glutathione S-transferase P1-1 (GSTP1-1)** inhibitor. NBDHEX induces **apoptosis** of tumor cells.

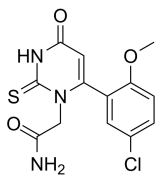


Purity: 98.58%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

PF-06282999

Cat. No.: HY-19321

PF-06282999 is a potent and selective **myeloperoxidase** inhibitor which is potential useful for the treatment of cardiovascular diseases.



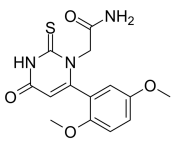
Purity: 99.41%
Clinical Data: Phase 1
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

PF-1355

(PF-06281355)

Cat. No.: HY-100873

PF-1355 is a selective 2-thiouracil mechanism-based MPO inhibitor, used for treatment of vasculitic diseases.



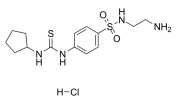
Purity: 99.86%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

PKUMDL-LC-101-D04

(GPX4-Activator-1d4)

Cat. No.: HY-115627

PKUMDL-LC-101-D04 (GPX4-Activator-1d4) is a potent ferroptosis regulator glutathione peroxidase 4 **(GPX4)** allosteric activator (pEC_{50}=4.7). PKUMDL-LC-101-D04 increases GPX4 activity to 150% at 20 μM in the cell-free assay and 61 μM in cell extracts.



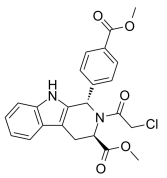
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RSL3

((1S,3R)-RSL3)

Cat. No.: HY-100218A

RSL3 ((1S,3R)-RSL3) is an inhibitor of **glutathione peroxidase 4 (GPX4)** (**ferroptosis** activator), reduces the expression of GPX4 protein, and induces ferroptotic death of head and neck cancer cell. RSL3 increases the expression of p62 and Nrf2 and inactivates Keap1 in HN3-rslR cells.



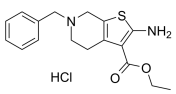
Purity: 99.87%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 2 mg, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Tinoridine hydrochloride

(Y-3642 hydrochloride)

Cat. No.: HY-111354

Tinoridine hydrochloride is a nonsteroidal anti-inflammatory drug and also has potent radical scavenger and antiperoxidative activity.

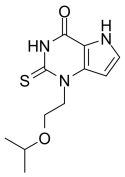


Purity: ≥98.0%
Clinical Data: Launched
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

Verdiperstat

(AZD3241) **Cat. No.:** HY-17646

Verdiperstat (AZD3241) is a selective, irreversible and orally active **myeloperoxidase (MPO)** inhibitor, with an IC_{50} of 630 nM, and can be used in the research of neurodegenerative brain disorders.



Purity: 99.60%
Clinical Data: Phase 3
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg