Product Datasheet

Bardoxolone

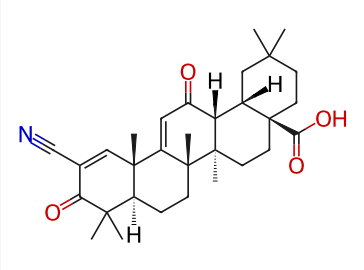
Catalog No. **BP-01986** · CAS **218600-44-3** · Form **free base** · Physical state **solid** · Color **White to off-white** · Version **1.0** · Revision **2026-09-10**

FOR RESEARCH USE ONLY. NOT FOR HUMAN OR VETERINARY USE.

Target	Research area
Keap1-Nrf2; NF-κB; SARS-CoV; Apoptosis; Reactive Oxygen Species (ROS)G; lutathione Peroxidase; Necroptosis	**Infection; Neurological Disease; Inflammation/Immunology; Cancer**

Molecular formula	$C_{31}H_{41}NO_4$
Molecular weight	**491.6615**

STRUCTURE



DESCRIPTION

Bardoxolone is a novel nuclear regulator factor (Nrf-2) activator.

BIOLOGICAL ACTIVITY

In Vitro

Bardoxolone (30 min) reversibly covalently inhibits SARS-CoV-2 3CLpro with an IC50 of 27.99 ± 2.34 μM and a dissociation constant of 25.90 μM.

Bardoxolone (48 h) inhibits SARS-CoV-2 replication in Vero and Calu-3 cells with EC50 values of 0.43 and 0.42 μM and selective index of 56.6 and 28.2.

Bardoxolone (10-100 nM) induces adipocyte differentiation in 3T3-L1 preadipocytes.

Bardoxolone induces differentiation in acute promyelocytic leukemia cell lines (HL-60, NB4, MR2) and primary AML blasts via PPAR-γ-dependent mechanisms, including enhancement of ATRA-induced effects.

Bardoxolone induces differentiation in osteosarcoma cells via a PPAR-γ-independent mechanism mediated by caspase-8 activity.

Bardoxolone (1-10 μM) exerts antiproliferative and proapoptotic effects in lymphoma and colon cancer cells via inhibition of Lonp1 activity.

Bardoxolone (1-10 μM) induces apoptosis in glioblastoma (U87MG, U251MG) and neuroblastoma (SK-N-MC) cell lines.

Bardoxolone (1-10 μM) induces intrinsic pathway apoptosis in U-937 leukemia cells with increased ROS and decreased intracellular GSH.

Bardoxolone (0.08-10 μM; pre-incubation + 12-16 h) inhibits Z-VAD-FMK-induced necroptosis in HT-29 cells with an EC50 of 1.30 ± 0.38 μM.

SOLUBILITY

Soluble in DMSO >50mg/mL

REFERENCES

[1]. Sun Q, et al. Bardoxolone and bardoxolone methyl, two Nrf2 activators in clinical trials, inhibit SARS-CoV-2 replication and its 3C-like protease. Signal Transduct Target Ther. 2021 May 29;6(1):212.

[2]. Borella R, et al. Synthesis and Anticancer Activity of CDDO and CDDO-Me, Two Derivatives of Natural Triterpenoids. Molecules. 2019;24(22):4097. Published 2019 Nov 13.

[3]. Wang Y, et al. Discovery of bardoxolone derivatives as novel orally active necroptosis inhibitors. Eur J Med Chem. 2021;212:113030.

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