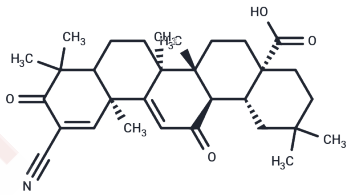
Data Sheet (Cat.No.T2915)

TargetMol

Bardoxolone

Chemical Properties



CAS No. : 218600-44-3

Formula: C31H41NO4

Molecular Weight: 491.66

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Bardoxolone (CDDO) is a synthetic oleanane triterpenoid that blocks the cellular synthesis of inducible nitric oxide synthase and inducible COX-2 in INF-γ-activated mouse macrophages with an IC50 value of 0.4 nM. By suppressing reactive oxygen and nitrogen species (ROS/RNS) formation, it promotes the cellular control of ROS/RNS levels that would lead to DNA damage associated with tumorigenesis. In various Y cell lines, Bardoxolone has been shown to specifically inhibit proliferation and induce apoptosis. Mechanism studies revealed that Bardoxolone is a ligand for peroxisome proliferator-activated receptor γ, and also that it induces genes regulated by Nrf2, including heme oxygenase-1 and eotaxin-1, which play a role in antioxidant response element signaling activity.
Targets(IC50)	Nrf2,Necroptosis,SARS-CoV,Virus Protease
In vitro	Bardoxolone methyl is a novel synthetic triterpenoid and antioxidant inflammation modulator that potently induces Nrf2 and inhibits NF-κB and Janus-activated kinase/STAT signaling. Bardoxolone methyl has been shown to induce differentiation, inhibit proliferation, and induce apoptosis in cancer cell lines[2].
In vivo	Kidney sections from monkeys treated with Bardoxolone methyl displayed a reduction in megalin protein expression, despite unchanged mRNA expression levels across all studied groups. Densitometry confirmed this reduction, indicating that Bardoxolone methyl significantly lowers megalin protein levels in the monkey kidney, without affecting cubilin protein or mRNA expression. Moreover, creatinine clearance in these monkeys significantly changed from the baseline and compared to vehicle-treated monkeys on day 28. Following 28 days of Bardoxolone methyl treatment, urinary albumin-to-creatinine ratios (UACRs) notably increased compared to vehicle-treated animals, with UACRs decreasing by 53.3% in vehicle-treated and increasing by 27.9% in Bardoxolone methyl-treated monkeys. In a separate study, male C57BL/6J mice were given Bardoxolone methyl orally during high-fat diet (HFD) feeding (HFD/BARD), with comparisons to mice solely on a high-fat (HFD) or a low-fat diet (LFD) for 21 weeks. HFD mice showed a significant increase in F4/80 crown-like structures by 95% and interstitial macrophages by 98% compared to LFD mice, both of which were substantially mitigated in HFD/BARD mice, showing reductions of 50% and 32% respectively, in these markers of inflammation.

Solubility Information

Solubility	DMSO: 16 mg/mL (32.54 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (8.14 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0339 mL	10.1696 mL	20.3393 mL
5 mM	0.4068 mL	2.0339 mL	4.0679 mL
10 mM	0.2034 mL	1.017 mL	2.0339 mL
50 mM	0.0407 mL	0.2034 mL	0.4068 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

McCullough PA, et al. Cardiac and renal function in patients with type 2 diabetes who have chronic kidney disease: potential effectsof bardoxolone methyl. Drug Des Devel Ther. 2012;6:141-9.
Wang J, Xu J, Yang S, et al.SN-38, an active metabolite of irinotecan, inhibits transcription of nuclear factor erythroid 2-related factor 2 and enhances drug sensitivity of colorectal cancer cells.Molecular Carcinogenesis.2024
Hong DS, et al. A phase I first-in-human trial of bardoxolone methyl in patients with advanced solid tumors and lymphomas. Clin Cancer Res. 2012 Jun 15;18(12):3396-406.
Reisman SA, et al. Bardoxolone Methyl Decreases Megalin and Activates Nrf2 in the Kidney. J Am Soc Nephrol. 2012 Oct;23(10):1663-73.
Dinh CH, et al. Bardoxolone Methyl Prevents Mesenteric Fat Deposition and Inflammation in High-Fat Diet Mice. ScientificWorldJournal. 2015;2015:549352.