Prostratin

Cat. No.: HY-107421

CAS No.: 60857-08-1

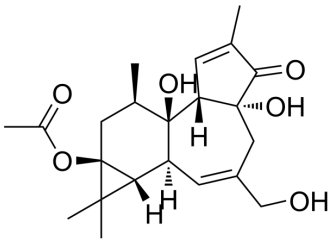
Molecular Formula: $C_{22}H_{30}O_6$

Molecular Weight: 390.47

Target: PKC; HIV

Pathway: Epigenetics; TGF-beta/Smad; Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (128.05 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5610 mL	12.8051 mL	25.6102 mL
	5 mM	0.5122 mL	2.5610 mL	5.1220 mL
	10 mM	0.2561 mL	1.2805 mL	2.5610 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.25 mg/mL (3.20 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.25 mg/mL (3.20 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.25 mg/mL (3.20 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Prostratin, a natural terpenoid compound, is a PKC activator, with a K_i of 12.5 nM and shows inhibitory effect on HIV-1.

IC_{50} & Target

PKC 12.5 nM (Ki)	HIV-1

In Vitro

Prostratin inhibits [^{3}H]PDBu binding to the CEM cells with a K_i of 210 nM[1].
Prostratin (125-1000 nM) dose-dependently inhibits the growth of acute myeloid leukemia (AML) cell lines (HL-60, NB4, and U937 cells). Prostratin (125-100 nM) induces G1 arrest of AML cells and affects the cell-cycle-related molecules (pRb phosphorylation, CDKs, and p21) in HL-60 cells. Prostratin also causes differentiation in AML cell lines via activation of PKC.

Furthermore, PKC-dependent activation of the MEK/ERK/MAP signaling pathway requires differentiation induced by Prostratin[2].

Prostratin induces HIV-1 transcription activation requiring active form of PKD3. Prostratin also activates PKD3 via PKCε of novel PKC subfamily[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	HL-60, NB4 and U937 cells
Concentration:	125 nM, 250 nM, 500 nM, 1000 nM
Incubation Time:	24 hours, 48 hours, 72 hours
Result:	Dose-dependently inhibited the growth of acute myeloid leukemia (AML) cell lines.

Cell Cycle Analysis[2]

Cell Line:	HL-60, NB4 and U937 cells
Concentration:	125 nM, 250 nM, 500 nM, 1000 nM
Incubation Time:	24 hours
Result:	Induced a G0/G1 phase accumulation in a concentration-dependent manner.

Western Blot Analysis[2]

Cell Line:	HL-60 cells
Concentration:	125 nM, 250 nM, 500 nM, 1000 nM
Incubation Time:	24 hours
Result:	Affected the cell-cycle-related molecules (pRb phosphorylation, CDKs, and p21) in HL-60 cells.

REFERENCES

[1]. Gustafson KR, et al. A nonpromoting phorbol from the samoan medicinal plant Homalanthus nutans inhibits cell killing by HIV-1. J Med Chem. 1992 May 29;35(11):1978-86.

[2]. Shen X, et al. The protein kinase C agonist prostratin induces differentiation of human myeloid leukemia cells and enhances cellular differentiation by chemotherapeutic agents. Cancer Lett. 2015 Jan 28;356(2 Pt B):686-96.

[3]. Wang H, et al. Protein kinase D3 is essential for prostratin-activated transcription of integrated HIV-1 provirus promoter via NF-κB signaling pathway. Biomed Res Int. 2014;2014:968027.

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