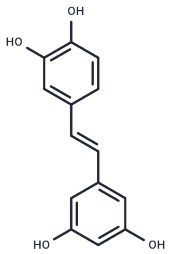
Data Sheet (Cat.No.T0610)

TargetMol

Piceatannol

Chemical Properties



CAS No. : 10083-24-6

Formula: C14H12O4

Molecular Weight: 244.24

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	Piceatannol (Astringenin) is an anti-inflammatory, immunomodulatory and antiproliferative agent. It inhibits p56lck and syk protein tyrosine kinases and inhibits NF-κB activation and gene expression of TNF-induced. It is synthetic from the conversion of resveratrol by cytochrome P450 1B1.
Targets(IC50)	Apoptosis,Endogenous Metabolite,Syk,Autophagy,PKA,PKC,Serine/threonin kinase
In vitro	In mast cells, Piceatannol is an effective inhibitor of histamine release, selectively suppressing Syk to block receptor-mediated cellular responses, including inhibition of 1,4,5-IP3 secretion, synthesis, membrane ruffling, and transportation. Piceatannol inhibits Syk activity approximately tenfold more potently than Lyn. When RBL-2H3 cells are treated with Piceatannol, antigen-stimulated phosphorylation of Syk and most other cellular proteins is strongly inhibited. However, it doesn't affect the phosphorylation of receptor gamma or beta subtypes, presenting a dose-dependent inhibition. Piceatannol also effectively inhibits CDPK, MLCK, PKC, and PKA, with IC50 values of 19 μM, 12 μM, 8 μM, and 3 μM respectively. It selectively inhibits IFNα-induced tyrosine phosphorylation of STAT3/5 without affecting STAT1/2 and selectively inhibits the dephosphorylation of tyrosine on Jak1 and IFNAR1, not affecting Tyk2 and IFNAR2. Piceatannol induces apoptosis in BJAB Burkitt-like lymphoma cells via the activation of caspase-3 and changes in mitochondrial permeability, with an ED50 of 25 μM, independent of the CD95/Fas signaling pathway. It inhibits NF-κB activation induced by TNF, H2O2, PMA, lipopolysaccharides, okadaic acid, and ceramide. Specifically, it inhibits TNF-induced expression of NF-κB-dependent reporter genes (matrix metalloproteinase-9, cyclooxygenase-2, and cyclin D1) by blocking TNF-induced IκBαof phosphorylation, p65 nuclear translocation, and IκB kinase activation, independent of tyrosine kinase. Piceatannol binds to intracellular phosphatidylinositol kinase in an ATP-competitive manner, inhibiting its activity and exhibiting anti-atherosclerotic effects superior to resveratrol. Lastly, Piceatannol suppresses the proliferation of both androgen-dependent and -independent CaP cells and notably reduces the expression of mTOR and its key effectors AKT and eIF4EBP-1.
In vivo	Oral administration of Piceatannol significantly ameliorates structural damage to the colon in BALB/c mice with dextran sulfate sodium-induced colitis, markedly reducing the production of inflammatory mediators (such as nitric oxide, prostaglandin E2, and pro-inflammatory cytokines), and notably diminishes colonic myeloperoxidase (MPO) activity. In type 2 diabetic db/db mouse models, Piceatannol suppresses early elevation

In vivo	of blood glucose levels and improves impaired glucose tolerance in later stages.
Kinase Assay	In Vitro Protein-tyrosine Kinase Assays: Recombinant Syk is expressed in baculovirus-infected St9 cells. Assays of recombinant Syk activity are carried out using angiotensin I peptide as substrate. The enzyme activities of recombinant Syk are measured by phosphorylation of angiotensin I peptide in the presence of various concentrations of Piceatannol.
Cell Research	Cells are exposed to increasing concentrations of Piceatannol. For the determination of cell proliferation, cells are assayed at 72 hours by trypan blue exclusion using a hemocytometer. After 1 week, colonies are stained with 1.25% crystal violet and quantified by measuring the absorbance at 595 nm. (Only for Reference)

Solubility Information

Solubility	Ethanol: 24.4 mg/mL (99.9 mM),Sonication is recommended. DMSO: 14.14 mg/mL (57.89 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 (16.38 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	4.0943 mL	20.4717 mL	40.9433 mL
5 mM	0.8189 mL	4.0943 mL	8.1887 mL
10 mM	0.4094 mL	2.0472 mL	4.0943 mL
50 mM	0.0819 mL	0.4094 mL	0.8189 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

Oliver JM, et al. J Biol Chem, 1994, 269(47), 29697-29703.
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Su L, et al. J Biol Chem, 2000, 275(17), 12661-12666.
Wieder T, et al. Leukemia, 2001, 15(11), 1735-1742.
Ashikawa K, et al. J Immunol, 2002, 169(11), 6490-6497.

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