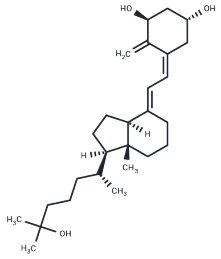
Data Sheet (Cat.No.T6316)

TargetMol

Calcitriol

Chemical Properties



CAS No. : 32222-06-3

Formula: C27H44O3

Molecular Weight: 416.64

Storage: Keep away from direct sunlight,Store under nitrogen, The compound is unstable in solution. Please use soon
Powder: -20°C for 3 years
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Calcitriol (1,25-Dihydroxyvitamin D3) is a metabolite of vitamin D and a vitamin D receptor (VDR) agonist (IC50=0.4 nM). Calcitriol increases intestinal absorption of calcium and phosphorus, and increases bone resorption with parathyroid hormone.
Targets(IC50)	Endogenous Metabolite,Vitamin,Drug Metabolite
In vitro	**METHODS**: Malignant pleural mesothelioma cells MSTO-211H, REN and mesothelial cells MeT-5A were treated with Calcitriol (1-100 nM) for 24 h. Cell viability was detected by MTT Assay. **RESULTS**: Calcitriol treatment resulted in a dose-dependent decrease in the viability of MSTO-211H and REN cells. The viability of non-malignant MeT-5A mesothelial cells treated with Calcitriol did not change. [1] **METHODS**: Human colorectal cancer cells HT29 and SW480 were treated with Calcitriol (100 nM) for 48 h, and the expression levels of target proteins were detected by Western Blot. **RESULTS**: Calcitriol increased the expression of E-cadherin, and decreased the expression of cyclin D1 and c-Myc, two downstream target genes of Wnt/β-catenin signaling in HT29 and SW480 cells. [2]
In vivo	**METHODS**: To study the effects on acute lung injury, Calcitriol (1.0 μg/kg) was administered intraperitoneally to CD-1 mice and LPS (1.0 mg/kg) was administered 1-48 h later. **RESULTS**: Calcitriol significantly attenuated LPS-induced inflammatory cell infiltration in the lungs, as well as the elevation of TNF-α and MIP-2 in serum and lung homogenate. [3] **METHODS**: To study its effects on atherosclerosis, Calcitriol (20-200 ng/mouse in carboxymethylcellulose) was administered by gavage to ApoE-/- mice twice weekly for twelve weeks. **RESULTS**: Oral administration of Calcitriol reduced atherosclerotic lesions, macrophage accumulation, and CD4(+) T-cell infiltration in aortic sinuses, and in Calcitriol-treated mice, there was a significant increase in Foxp3(+) regulatory T-cells in mesenteric lymph nodes, spleen, and atherosclerotic lesions and a decrease in CD80(+)CD86(+)DC), as well as a decrease in IL-10 and IL-12 mRNA. -10 and IL-12 mRNA expression was increased.

In vivo	[4]
Cell Research	Calcitriol is dissolved in DMSO and stored, and then diluted with appropriate medium before use[1]. Experiments are performed using parathyroid tissue slices instead of dispersed parathyroid cells so that tissue architecture is maintained. Parathyroid glands are cut into small pieces of approximately 1 mm3 and placed in individual wells (24 well dishes) with constant shaking at 37°C and placed in an incubator with a humid atmosphere. The incubation medium is buffered (pH 7.4) and contained 125 mM NaCl, 5.9 mM KCl, 0.5 mM MgCl2, 1 mM NaH2PO4, and Na2HPO4 (1:2 ratio), 1 mM Na-pyruvate, 4 mM glutamine, 12 mM glucose, and 25 mM HEPES. Insulin 0.1 IU/mL, bovine serum albumin 0.1%, penicillin G 100 IU/mL, and streptomycin 100 μg/mL are added to the medium. CaCl2 is added to achieve a final target ionized calcium concentration of 1.25 mM as measured with a selective electrode (634 Ca/pH analyzer). Ionized calcium concentration is also measured in each well after the completion of the experiment, and no change in the ionized calcium concentration is observed. Calcitriol is added to the medium to achieve concentrations ranging from 10-10 to 10-7 M. To quantify the amount of free Calcitriol, we filtered the medium through a membrane with a 5000-MW cutoff and Calcitriol is measured by RIA (Gamma 1,25-Dihydroxyvitamin D). As compared with total Calcitriol, the concentration of free Calcitriol is decreased by one order of magnitude[1].

Solubility Information

Solubility	Ethanol: 77 mg/mL (184.81 mM),The compound is unstable in solution, please use soon. H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 240 mg/mL (576.04 mM),The compound is unstable in solution, please use soon. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.4002 mL	12.0008 mL	24.0015 mL
5 mM	0.480 mL	2.4002 mL	4.8003 mL
10 mM	0.240 mL	1.2001 mL	2.4002 mL
50 mM	0.048 mL	0.240 mL	0.480 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

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