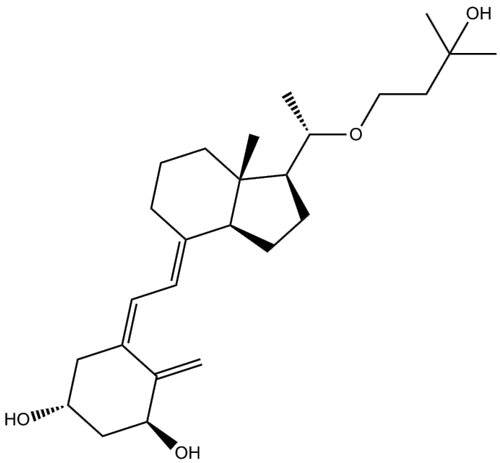
Product Data Sheet

Product Name: Maxacalcitol
Cat. No.: GC13090

Chemical Properties

Cas. No.	103909-75-7		
Chemical Name	(1R,3S,5Z)-5-[(2E)-2-[(1S,3aS,7aS)-1-[(1S)-1-(3-hydroxy-3-methylbutoxy)ethyl]-7a-methyl-2,3,3a,5,6,7-hexahydro-1H-inden-4-ylidene]ethylidene]-4-methylidenecyclohexane-1,3-diol		
SMILES	CC(C1CCC2C1(CCCC2=CC=C3CC(CC(C3=C)O)O)C)OCCC(C)(C)O		
Formula	$C_{26}H_{42}O_4$	M.Wt	418.62
Solubility	1mg/mL in ethanol, slightly soluble in acetone, chloroform and DMSO, insoluble in water	Storage	Store at -20°C,unstable in solution, ready to use.
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

Maxacalcitol (22-oxacalcitriol (OCT)) is an analog of active vitamin D.
In human vascular smooth muscle cells (VSMCs), vehicle-treated VSMCs exhibited massive

mineralization, which was inhibited by maxacalcitol in a concentration-dependent manner. [1] In vitro, maxacalcitol and calcitriol markedly inhibited the proliferation and caused a G1 phase cell cycle arrest. In vivo, maxacalcitol suppressed the growth of BxPC-3 xenografts more significantly than calcitriol, and did not inducing hypercalcemia. Responsive cells had many functional vitamin D receptors. [2]

In diabetic rats aged 20 weeks, maxacalcitol reduced albuminuria and mesangial matrix enlargement, with limited differences were observed in blood pressure and creatinine clearance among the 3 treatment groups which were insulin, maxacalcitol, and vehicle groups. Systemic and intrarenal oxidative stress was reduced by maxacalcitol therapy. Maxacalcitol attenuates the progression of diabetic nephropathy by suppression of oxidative stress and amelioration of the Nrf2-Keap1 pathway in nonobese type 2 diabetes without significant changes in blood pressure and glomerular filtration rate. [3]

References:

1.Aoshima Y, Mizobuchi M, Ogata H et al. Vitamin D receptor activators inhibit vascular smooth muscle cell mineralization induced by phosphate and TNF-α. Nephrol Dial Transplant. 2012 May;27(5):1800-6.

2. Kawa S1, Yoshizawa K, Nikaido T et al. Inhibitory effect of 22-oxa-1,25-dihydroxyvitamin D3, maxacalcitol, on the proliferation of pancreatic cancer cell lines. J Steroid Biochem Mol Biol. 2005 Oct;97(1-2):173-7. Epub 2005 Jul 20.

3. Nakai K, Fujii H, Kono K et al. Vitamin D activates the Nrf2-Keap1 antioxidant pathway and ameliorates nephropathy in diabetic rats. Am J Hypertens. 2014 Apr;27(4):586-95. doi: 10.1093/ajh/hpt160. Epub 2013 Sep 11.