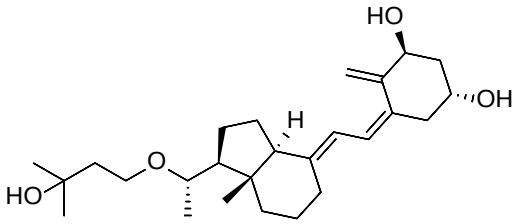
Product data sheet

MedKoo Cat#: 329666 Name: Maxacalcitol CAS: 103909-75-7 Chemical Formula: $C_{26}H_{42}O_4$ Exact Mass: 418.3083 Molecular Weight: 418.618	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.



1. Product description:
Maxacalcitol, also known as 22-Oxacalcitriol, is an analog of calcitriol that, like calcitriol, is a receptor-active form of vitamin D3 which effectively blocks PTH synthesis. Maxacalcitol (OCT) induces hCAP-18/LL-37 production in human oral epithelial cells. Maxacalcitol Provides Cardioprotective Effects in Diabetes Mellitus. Maxacalcitol ameliorates tubulointerstitial fibrosis in obstructed kidneys by recruiting PPM1A/VDR complex to pSmad3.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	50.0	119.44
Ethanol	1.0	2.39

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.39 mL	11.94 mL	23.89 mL
5 mM	0.48 mL	2.39 mL	4.78 mL
10 mM	0.24 mL	1.19 mL	2.39 mL
50 mM	0.05 mL	0.24 mL	0.48 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Tada H, Shimizu T, Matsushita K, Takada H. Porphyromonas gingivalis-induced IL-33 down-regulates hCAP-18/LL-37 production in human gingival epithelial cells. Biomed Res. 2017;38(3):167-173. doi: 10.2220/biomedres.38.167. PMID: 28637951.

2. Tada H, Shimizu T, Nagaoka I, Takada H. Vitamin D3 analog maxacalcitol (OCT) induces hCAP-18/LL-37 production in human oral epithelial cells. Biomed Res. 2016;37(3):199-205. doi: 10.2220/biomedres.37.199. PMID: 27356607.

In vivo study

1. Inoue K, Matsui I, Hamano T, Fujii N, Shimomura A, Nakano C, Kusunoki Y, Takabatake Y, Hirata M, Nishiyama A, Tsubakihara Y, Isaka Y, Rakugi H. Maxacalcitol ameliorates tubulointerstitial fibrosis in obstructed kidneys by recruiting PPM1A/VDR complex to pSmad3. Lab Invest. 2012 Dec;92(12):1686-97. doi: 10.1038/labinvest.2012.107. Epub 2012 Aug 27. PMID: 22926646.

2. Monier-Faugere MC, Geng Z, Friedler RM, Qi Q, Kubodera N, Slatopolsky E, Malluche HH. 22-oxacalcitriol suppresses secondary hyperparathyroidism without inducing low bone turnover in dogs with renal failure. Kidney Int. 1999 Mar;55(3):821-32. doi: 10.1046/j.1523-1755.1999.055003821.x. PMID: 10027919.

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7. Bioactivity

Biological target:

Maxacalcitol (22-Oxacalcitriol) is non-calcemic vitamin D3 analog and ligand of VDR-like receptors.

In vitro activity

Maxacalcitol (22-oxacalcitriol: OCT) is a biologically active metabolite of vitamin D3 analog, and OCT increases hCAP-18/LL-37 production by human gingival epithelial cells. The increasing expression of LL-37 mRNA by OCT was down-regulated by infection of the cells with P. gingivalis ATCC 33277 in Ca9-22 cells.

Reference: Biomed Res. 2017;38(3):167-173. https://pubmed.ncbi.nlm.nih.gov/28637951/

In vivo activity

In Nx (nephrectomized) dogs, OCT (22-oxacalcitriol) significantly decreased serum PTH levels soon after the induction of renal insufficiency. In animals with normal renal function, OCT induced a transient decrease in serum PTH levels at a dose of 0.1 microg/kg, which was not sustained with lowering of the doses. In Nx dogs, OCT reversed abnormal bone formation, such as woven osteoid and fibrosis, but did not significantly alter the level of bone turnover. In addition, OCT improved mineralization lag time, (that is, the rate at which osteoid mineralizes) in both Nx and Sham dogs.

Reference: Kidney Int. 1999 Mar;55(3):821-32. https://pubmed.ncbi.nlm.nih.gov/10027919/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.