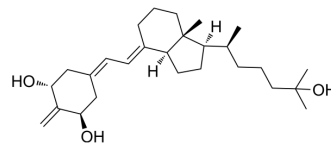


2MD

Cat. No.:	HY-148698
CAS No.:	213250-70-5
Molecular Formula:	C ₂₇ H ₄₄ O ₃
Molecular Weight:	416.64
Target:	VD/VDR
Pathway:	Vitamin D Related
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	2MD is an orally active vitamin D analog. 2MD stimulates periosteal bone formation and decreases trabecular bone resorption. Thus 2MD restores trabecular and cortical bone mass and strength. 2MD also regulates intraocular pressure (IOP)-relative genes and reduces IOP in non-human primates ^{[1][2]} .								
In Vivo	<p>2MD (5 μg/eye; instillation; single dose) decreases the IOP gradually by 20% in the ipsilateral eye and 15% or less in the contralateral eye after 7-8 h in cynomolgus monkey eyes in vivo^[1].</p> <p>2MD (0.5-10 ng/kg, 0,1 mL/day; p.o.; once daily for 16 weeks) not only restores both trabecular and cortical bone mass, but also increases bone mass and strength in osteopenic ovariectomized (OVX) rats by stimulating bone formation on the periosteal surface and decreasing bone resorption on the trabecular surface in rats^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Ovariectomized (OVX) rats model (Sprague-Dawley female rats; 4-month-old)^[2]</td> </tr> <tr> <td>Dosage:</td> <td>0.5, 1, 2.5, 5, and 10 ng/kg, 0,1 mL/day</td> </tr> <tr> <td>Administration:</td> <td>Oral gavage; once daily for 16 weeks</td> </tr> <tr> <td>Result:</td> <td>Significantly increased serum calcium at 2.5, 5, or 10 ng/kg/day. Dose-dependent reduction in osteoclast number and trabecular osteoclast surface, and dose-dependent increased in periosteal bone formation.</td> </tr> </table>	Animal Model:	Ovariectomized (OVX) rats model (Sprague-Dawley female rats; 4-month-old) ^[2]	Dosage:	0.5, 1, 2.5, 5, and 10 ng/kg, 0,1 mL/day	Administration:	Oral gavage; once daily for 16 weeks	Result:	Significantly increased serum calcium at 2.5, 5, or 10 ng/kg/day. Dose-dependent reduction in osteoclast number and trabecular osteoclast surface, and dose-dependent increased in periosteal bone formation.
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REFERENCES

[1]. Kutuzova GD, et al. 1α,25-Dihydroxyvitamin D(3) and its analog, 2-methylene-19-nor-(20S)-1α,25-dihydroxyvitamin D(3) (2MD), suppress intraocular pressure in non-human primates. Arch Biochem Biophys. 2012 Feb 1;518(1):53-60.

[2]. Ke HZ, et al. A new vitamin D analog, 2MD, restores trabecular and cortical bone mass and strength in ovariectomized rats with established osteopenia. J Bone Miner Res. 2005 Oct;20(10):1742-55.

Caution: Product has not been fully validated for medical applications. For research use only.

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