

Product Data Sheet

Product Name: Tacalcitol

Cat. No.: GC10890

Chemical Properties

Cas. No. 57333-96-7

Chemical Name (1R,3S,5Z)-5-[(2E)-2-[(1R,3aS,7aR)-1-[(2R,5R)-5-hydroxy-6-methylheptan-2-yl]-7a-methyl-2,3,3a,5,6,7-hexahydro-1H-inden-4-ylidene]ethylidene]-4-methylidenecyclohexane-1,3-diol

SMILES CC(C)C(CCC(C)C1CCC2C1(CCCC2=CC=C3CC(CC(C3=C)O)O)C)O

Formula C₂₇H₄₄O₃

M.Wt 416.65

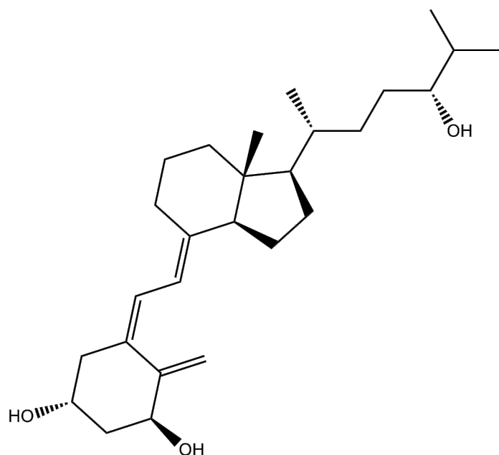
Solubility 20mg/mL in DMSO, 20mg/mL in DMF, 20mg/mL in Ethanol

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



Protocol

Cell experiment [1]:

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Cell lines	Human keratinocytes
Preparation Method	Cells were cultured in the presence or absence of tacalcitol (1,24R(OH) $2D_3$); or 1,25(OH) $2D_3$, for 48h. Cells were immunochemically stained using anti-involucrin antibody, and the number of cells expressing involucrin was determined by Flow cytometry using a FACScan.
Reaction Conditions	0.01-1 μ M; 48h
Applications	The treatment with tacalcitol increased the numbers of involucrin positive cells.

Animal experiment [2]:

Animal models	60 weeks old ovariectomized (OVX) mice bearing 4T1 tumours
Preparation Method	Tacalcitol were administered subcutaneously (s.c.) thrice weekly starting from day 7 after tumor cell inoculation. The single dose of compounds was as follows: calcitriol, 0.5 μ g/kg; Tacalcitol, 1.0 μ g/kg; and PRI-2205, 10.0 μ g/kg. Control mice (both OVX and sham operated) were administered with vehicle (80% PEG) in the same volume and scheme as vitamin D compounds.
Dosage form	1.0 μ g/kg; s.c.; thrice weekly
Applications	Tacalcitol transiently decreased the metastatic spread of 4T1 breast carcinoma without influencing primary tumour growth or angiogenesis in old OVX mice.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

References:

- [1] Kobayashi, Teruaki, et al. "1 α , 24R-dihydroxyvitamin D3 has an ability comparable to that of 1 α , 25-dihydroxyvitamin D3 to induce keratinocyte differentiation." *The Journal of Dermatology* 17.11 (1990): 707-709.
- [2] Anisiewicz, Artur, et al. "Calcitriol analogues decrease lung metastasis but impair bone metabolism in aged ovariectomized mice bearing 4T1 mammary gland tumours." *Aging and disease* 10.5 (2019): 977.

Background

Tacalcitol is a calcitriol analogue, regulates calcium metabolism by stimulating intestinal calcium absorption and influencing bone turnover. But tacalcitol has no significant change in bone formation [1]. Tacalcitol can be used in the research of inflammation, breast cancer, and skin diseases, and prevent the osteoporosis that results from the development of cancer or from chemotherapy or hormone therapy [2-3].

In vitro, treatment of normal human keratinocytes with tacalcitol (0.01-1 μ M; 48h) increased the numbers of involucrin positive cells and induced cell differentiation [4].

In vivo, tacalcitol (1.0 μ g/kg; s.c.; thrice weekly) decreased bone column density, transiently decreased the metastatic spread of 4T1 breast carcinoma without influencing primary tumour growth or angiogenesis in old ovariectomized (OVX) mice [2]. While tacalcitol (1.0 μ g/kg; s.c.; thrice weekly) increased metastatic spread in young mice bearing 4T1 breast cancer [5].

References:

- [1] Yamada, S., J-P. Bonjour, and H. Fleisch. "Effect of 1 α , 24 (R)-dihydroxyvitamin D3 on calcium metabolism in the rat." *European Journal of Endocrinology* 111.4 (1986): 572-576.
- [2] Anisiewicz, Artur, et al. "Calcitriol analogues decrease lung metastasis but impair bone metabolism in aged ovariectomized mice bearing 4T1 mammary gland tumours." *Aging and disease* 10.5 (2019): 977.
- [3] Matsumoto, Kunio, et al. "Effect of 1, 24R-dihydroxyvitamin D3 on the growth of human keratinocytes." *The Journal of Dermatology* 17.2 (1990): 97-103.
- [4] Kobayashi, Teruaki, et al. "1 α , 24R-dihydroxyvitamin D3 has an ability comparable to that of

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

1 α ,25-dihydroxyvitamin D3 to induce keratinocyte differentiation." The Journal of Dermatology 17.11 (1990): 707-709.

[5] Anisiewicz, Artur, et al. "Unfavorable effect of calcitriol and its low-calcemic analogs on metastasis of 4T1 mouse mammary gland cancer." International journal of oncology 52.1 (2018): 103-126.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA