Triamcinolone acetonide

Cat. No.: HY-B0636

CAS No.: 76-25-5

Molecular Formula: $C_{24}H_{31}FO_6$

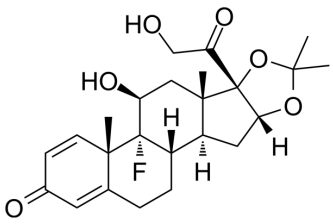
Molecular Weight: 434.5

Target: Glucocorticoid Receptor; FGFR

Pathway: Immunology/Inflammation; Vitamin D Related/Nuclear Receptor; Protein Tyrosine Kinase/RTK

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (115.07 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.3015 mL	11.5075 mL	23.0150 mL
5 mM	0.4603 mL	2.3015 mL	4.6030 mL
10 mM	0.2301 mL	1.1507 mL	2.3015 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.79 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.79 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.79 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Triamcinolone acetonide inhibits basic fibroblast growth factor (bFGF) induced proliferation of retinal endothelial cells. Triamcinolone acetonide reduces chondrocyte viability and leads to cartilage destruction. Triamcinolone acetonide activates macrophage with anti-inflammatory characteristics. Triamcinolone acetonide can be used in the study of diseases such as atopic dermatitis[1][2][3][4].

In Vitro

Triamcinolone acetonide (0.05-3 mg/mL, 48-60 h) decreases the proliferation of BRECs with increasing concentration[1].
Triamcinolone acetonide (0.04-5 mg/mL, 24 h) reduces chondrocyte viability in both normal and osteoarthritic (OA) chondrocytes in a concentration-dependent manner[2].
Triamcinolone acetonide (0.04-5 mg/mL, 24 h) increases the severity of cartilage structural damage, chondrocyte loss and cluster formation, and proteoglycan loss in OA cartilage[2].
Triamcinolone acetonide (100 nM, 7 days) strongly induces monocyte differentiation towards an M2 and anti-inflammatory macrophage phenotype[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	Chondrocyte
Concentration:	0.04, 0.08, 0.16, 0.31, 0.63, 1.25, 2.5, and 5 mg/ml
Incubation Time:	24 h
Result:	Reduced cell viability with the value of IC_{50} was 2.23 mg/mL in normal chondrocytes and 1.14 mg/mL in OA chondrocytes.

In Vivo

Triamcinolone acetonide (1.43 mg/mL, Intraperitoneal injection, once a week for 6-12 weeks) enhances folate receptor beta (FRβ)-related macrophage activation and fully prevents osteophyte development in an in vivo rat model of Osteoarthritis[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Severe OA rat model [3]
Dosage:	1.43 mg/mL
Administration:	Intraperitoneal injection (i.p.)
Result:	Decreased body weight during OA induction. Showed more macrophage activation and minimal or no osteophyte formation when injected knee joints.

CUSTOMER VALIDATION

- Drug Test Anal. 2020 Aug 27.
- SSRN. 2023 Oct 31.
- Patent. US20210252159A1.

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REFERENCES

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[3]. Siebelt M, et al. Triamcinolone acetonide activates an anti-inflammatory and folate receptor–positive macrophage that prevents osteophytosis in vivo [J]. Arthritis research & therapy, 2015, 17(1): 1-13.

[4]. Jensen J M, et al. Effects of pimecrolimus compared with triamcinolone acetonide cream on skin barrier structure in atopic dermatitis: a randomized, double-blind, right–left arm trial [J]. Acta Dermato-Venereologica, 2013, 93(5): 515-519.

[5]. http://en.wikipedia.org/wiki/Triamcinolone_acetonide

[6]. Zhen Xiang, et al. Glucocorticoids improve severe or critical COVID-19 by activating ACE2 and reducing IL-6 levels. Int J Biol Sci 2020; 16(13):2382-2391.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA