Medroxyprogesterone acetate

Cat. No.: HY-B0469

CAS No.: 71-58-9

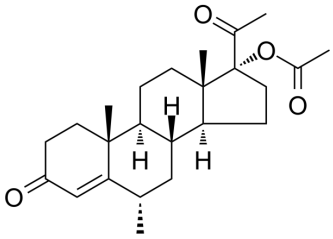
Molecular Formula: $C_{24}H_{34}O_4$

Molecular Weight: 386.52

Target: Progesterone Receptor; Endogenous Metabolite; Androgen Receptor; Glucocorticoid Receptor

Pathway: Vitamin D Related/Nuclear Receptor; Metabolic Enzyme/Protease; Immunology/Inflammation

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 10 mg/mL (25.87 mM; Need ultrasonic)
Ethanol : 6.25 mg/mL (16.17 mM; ultrasonic and warming and heat to 60°C)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5872 mL	12.9359 mL	25.8719 mL
	5 mM	0.5174 mL	2.5872 mL	5.1744 mL
	10 mM	0.2587 mL	1.2936 mL	2.5872 mL

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

In Vivo

1. Add each solvent one by one: 15% Cremophor EL >> 85% Saline
   Solubility: 25 mg/mL (64.68 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1 mg/mL (2.59 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1 mg/mL (2.59 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1 mg/mL (2.59 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Medroxyprogesterone acetate is a widely used synthetic steroid by its interaction with progesterone, androgen and glucocorticoid receptors[1].

IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Medroxyprogesterone acetate (10 and 0.5 nM, 48 h) inhibits Steroid-deprived HUVEC eNOS expression[2]. Medroxyprogesterone acetate (10 and 0.5 nM, 16 h) inhibits leukocyte adhesion to human endothelial cells (Steroid-deprived HUVECs) by reduing endothelial adhesion molecule (VCAM-1 and ICAM-1 protein) expression[2]. Medroxyprogesterone acetate (10 and 0.5 nM, 2 h) reduces NF-κB nuclear translocation in Steroid-deprived HUVECs[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. Immunofluorescence[2] Cell Line: 100 ng/ml LPS treated endothelial cells Concentration: 10 and 0.5 nM Incubation Time: 2h Result: Inhibited NF-κB nuclear translocation.
In Vivo	Medroxyprogesterone acetate (5 mg/kg, oral gavage, rats) shows a C_{max} of 377.9 ng/mL, AUC_{0-} 2535.9 ng·h/mL, $t_{1/2}$ of 10.2 h [3]. Medroxyprogesterone acetate (0.05-0.2 mg/kg/day, p.o., 14 days, rats) increases allopregnanolone levels in all tissues except in the adrenal gland, and affects β-END levels in the hippocampus[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Signal Transduct Target Ther. 2023 May 10;8(1):183.
- Int J Mol Sci. 2023 Mar 7.
- Endocrinology. 2024 Apr 29;165(6):bqae049.
- Reprod Biol Endocrinol. 2022 Sep 22;20(1):142.
- Mol Cell Endocrinol. 2023 May 31;111952.

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REFERENCES

[1]. Simoncini T, et al. Differential signal transduction of progesterone and medroxyprogesterone acetate in human endothelial cells. Endocrinology. 2004 Dec;145(12):5745-56.

[2]. Smith D, et al. Pharmacokinetics and bioavailability of medroxyprogesterone acetate in the dog and the rat. Biopharm Drug Dispos. 1993 May;14(4):341-55.

[3]. Bernardi F, et al. Progesterone and medroxyprogesterone acetate effects on central and peripheral allopregnanolone and beta-endorphin levels. Neuroendocrinology. 2006;83(5-6):348-59.

[4]. Schindler AE, et al. Classification and pharmacology of progestins. Maturitas. 2008 Sep-Oct;61(1-2):171-80.

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

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