# Medroxyprogesterone acetate

**Cat. No.:** HY-B0469

**CAS No.:** 71-58-9

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

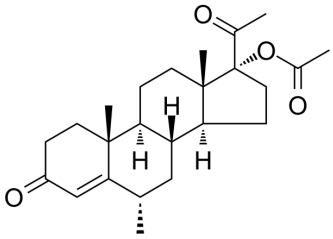
**Molecular Weight:** 386.52

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

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

**Storage:**

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



## 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**

| Solvent / Mass / 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: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1 mg/mL (2.59 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1 mg/mL (2.59 mM); Clear solution
3. 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].<br>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].<br>Medroxyprogesterone acetate (10 and 0.5 nM, 2 h) reduces NF-κB nuclear translocation in Steroid-deprived HUVECs[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only.<br>Immunofluorescence[2]<br>Cell Line: 100 ng/ml LPS treated endothelial cells<br>Concentration: 10 and 0.5 nM<br>Incubation Time: 2h<br>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].<br>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].<br>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.
- Reprod Biol Endocrinol. 2022 Sep 22;20(1):142.
- Mol Cell Endocrinol. 2023 May 31;111952.
- Reprod Biomed Online. 11 October 2022.

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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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