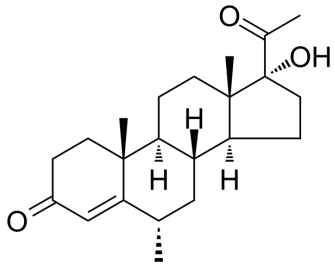
Medroxyprogesterone

Cat. No.:	HY-B0648
CAS No.:	520-85-4
Molecular Formula:	$C_{22}H_{32}O_3$
Molecular Weight:	344.49
Target:	Progesterone Receptor
Pathway:	Vitamin D Related/Nuclear Receptor
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (145.14 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9028 mL	14.5142 mL	29.0284 mL
	5 mM	0.5806 mL	2.9028 mL	5.8057 mL
	10 mM	0.2903 mL	1.4514 mL	2.9028 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.26 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Medroxyprogesterone (17α-Hydroxy-6α-methylprogesterone) is a synthetic human variant of progesterone that is a progesterone receptor agonist with oral activity. Medroxyprogesterone can induce cell proliferation through the PI3K/Akt signaling pathway. Medroxyprogesterone has an inhibitory effect on atherosclerosis in mice. The progesterone agonist activity of Medroxyprogesterone is less effective than Medroxyprogesterone acetate (HY-B0469)[1][2][3][4].

In Vitro

Medroxyprogesterone (10 nM, 48 h) has induced Cyclin D1 expression through the PI3K/Akt signaling pathway to promote cell proliferation in T47D cells [1].

Medroxyprogesterone (100 nM, 24 h) has increased the number of monocytes adhering to HUVECs by increasing the expression of adhesion molecules in HUVEC cells, which may be the cause of atherosclerosis[2].

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

Cell Proliferation Assay[1]

Cell Line:	T47D
Concentration:	10 nM
Incubation Time:	24 h, 48 h, 72h
Result:	Increased the number of cells at 48 h.

Western Blot Analysis[1]

Cell Line:	T47D
Concentration:	10 nM
Incubation Time:	4 h
Result:	Induced the expression of Cyclin D1 protein.

RT-PCR[2]

Cell Line:	HUVECs
Concentration:	100 nM
Incubation Time:	24 h
Result:	Increased mRNA and protein expression of adhesion molecules.

In Vivo

Medroxyprogesterone (27.7 μg/ day, injected subcutaneously) has an inhibitory effect on arteriosclerosis in mice but can increase thrombosis [3].

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

Animal Model:	ApoE-/- mice model[3]
Dosage:	27.7 μg/day
Administration:	s.c.
Result:	Reduced atherosclerotic plaque and increased thrombosis.

CUSTOMER VALIDATION

- Cancer Cell Int. 2021 Jun 5;21(1):291.
- BMC Biol. 2022 Dec 8;20(1):276.
- Invest Ophthalmol Vis Sci. 2022 Sep 1;63(10):3.
- Oncotargets Ther. 2020 Nov 13;13:11669-11688.
- Placenta. 2021 Jan 1;103:1-9.

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REFERENCES

[1]. Saitoh M, et al. Medroxyprogesterone acetate induces cell proliferation through up-regulation of cyclin D1 expression via phosphatidylinositol 3-kinase/Akt/nuclear factor-kappaB cascade in human breast cancer cells. Endocrinology. 2005 Nov;146(11):4917-25.

[2]. Ito F, et al. Medroxyprogesterone acetate enhances monocyte-endothelial interaction under flow conditions by stimulating the expression of cell adhesion molecules. J Clin Endocrinol Metab. 2014 Jun;99(6):2188-97.

[3]. Freudenberger T, et al. Differential effects of medroxyprogesterone acetate on thrombosis and atherosclerosis in mice. Br J Pharmacol. 2009 Dec;158(8):1951-60.

[4]. Yusop SNW, et al. Medroxyprogesterone derivatives from microbial transformation as anti-proliferative agents and acetylcholineterase inhibitors (combined in vitro and in silico approaches). Steroids. 2020 Dec;164:108735.

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