11beta-Hydroxyprogesterone

Cat. No.: HY-N2337

CAS No.: 600-57-7

Molecular Formula: $C_{21}H_{30}O_3$

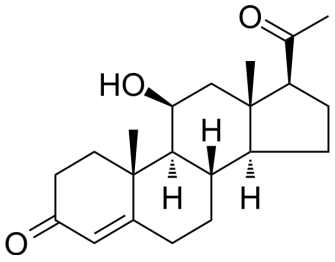
Molecular Weight: 330.46

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (75.65 mM; Need ultrasonic)

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	3.0261 mL	15.1304 mL	30.2609 mL
	5 mM	0.6052 mL	3.0261 mL	6.0522 mL
	10 mM	0.3026 mL	1.5130 mL	3.0261 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: ≥ 2.5 mg/mL (7.57 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.57 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.57 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

11beta-Hydroxyprogesterone is a potent inhibitors of 11β-Hydroxysteroid dehydrogenase; also activates human mineralocorticoid receptor in COS-7 cells with an ED_{50} of 10 nM.

IC_{50} & Target

Human Endogenous Metabolite	Human Endogenous Metabolite

In Vitro

11OHP displays agonist mineralocorticoid activity. 11β-hydroxyprogesterone activates the transiently expressed hMR in COS-7 cells in a dose-dependent manner with an ED_{50} of 10 nM and stimulates $Ams/_{sc}$ in $mpkCCD_{cl4}$ cells. Docking 11β-hydroxyprogesterone within the hMR-ligand-binding domain homology model reveals that the agonist activity of 11OHP is

	caused by contacts between its 11β-hydroxyl group and Asn770[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	11β-hydroxyprogesterone causes a significant elevation in blood pressure within 3 days, an effect that persisted throughout the 14-day infusion. 11β-hydroxyprogesterone is potently hypertensinogenic in the rat and that this activity depends on an intact adrenal and at least in part on the activation of mineralocorticoid receptors[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [2]	Rats: 11α- and 11β-OHP are dissolved in propylene glycol (100%) and infused at 3 and 10 μg/h, respectively, for 14 days. Control rats received vehicle only. BP is measured the day before pumps were implanted and on days 3, 7, 10, and 14 after implantation. Indirect systolic BPs are measured with a modified tail-cuff method[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Chem Biol. 2022 Aug 18.
- Proc Natl Acad Sci U S A. 2022 Apr 12;119(15):e2117004119.

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REFERENCES

[1]. Rafestin-Oblin ME, et al. 11beta-hydroxyprogesterone acts as a mineralocorticoid agonist in stimulating Na+ absorption in mammalian principal cortical collecting duct cells. Mol Pharmacol. 2002 Dec;62(6):1306-13.

[2]. Souness GW, et al. 11 alpha- and 11 beta-hydroxyprogesterone, potent inhibitors of 11 beta-hydroxysteroid dehydrogenase, possess hypertensinogenic activity in the rat. Hypertension. 1996 Mar;27(3 Pt 1):421-5.

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