Progesterone

Cat. No.: HY-N0437

CAS No.: 57-83-0

Molecular Formula: $C_{21}H_{30}O_2$

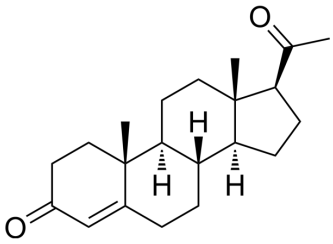
Molecular Weight: 314.46

Target: Progesterone Receptor; Endogenous Metabolite

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

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 (159.00 mM; ultrasonic and warming and heat to 60°C)

H_2O : 0.1 mg/mL (0.32 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1801 mL	15.9003 mL	31.8005 mL
	5 mM	0.6360 mL	3.1801 mL	6.3601 mL
	10 mM	0.3180 mL	1.5900 mL	3.1801 mL

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 20 mg/mL (63.60 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: corn oil
   Solubility: 10 mg/mL (31.80 mM); Clear solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (6.61 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.61 mM); Clear solution
5. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.61 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Progesterone is a steroid hormone that regulates the menstrual cycle and is crucial for pregnancy.

IC_{50} & Target	Human Endogenous Metabolite

In Vivo

Progesterone (Injections; 1 mg; three consecutive daily) stimulates vessel maturation in the mouse endometrium[4] .Progesterone shows a short half-life (0.2 h) in both plasma and brain. The volume of distribution with intraperitoneal injection was 172.78 versus 1641.84 ng/h per g via minipump in the first 24 h(8 mg/kg i.p. once,continuous subcutaneous infusion (1.0 ml/h of a 50 mg/ml)[5].

Induction of?chloasma[6]

Background

> Progesteroneincrease the pigmentation and body weight. The body weight gain was believed to be due to sodium and fluid retention, which may further affect the intracellular pH of melanosomes, which synthesize melanin, in turn, leading to melanin production because tyrosinase activity is linked to the intracellular pH environment[7].

Specific Mmodeling Methods

> Mouse: 6-8 weeks, female C57BL/6J mice
>
> Administration: 15 mg/kg; Injected intramuscularly, (3 * 3 cm back hair shaved; UVB irradiation (λ = 312 nm, 2 h/day)), daily for 30 days

Note

Modeling Record

> Molecular changes: Caused cutaneous tissue injury, scab format and skin got blacker, induced a severe epidermal hyperplasia, hair follicles necrosis, and fibrous tissue hyperplasia, showed melanophores enriched in the epidermis, increased the expression of p-JNK /JNK and p-P38MAPK/ P38MAPK
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> .

Correlated Product(s):

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

Animal Model:	Adult female mice (7-13 wk, 18-28 g)[4]
Dosage:	1 mg
Administration:	Injections; three consecutive daily
Result:	Stimulated vessel maturation in the mouse endometrium.

CUSTOMER VALIDATION

- Nat Chem Biol. 2022 Aug 18.
- Biosens Bioelectron. 12 July 2022, 114548.

- Proc Natl Acad Sci U S A. 2022 Apr 12;119(15):e2117004119.
- Acta Pharmacol Sin. 2022 Sep;43(9):2429-2438.
- J Med Chem. 2022 Nov 18.

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REFERENCES

[1]. Wong R, et al. Progesterone pharmacokinetics in the mouse: implications for potential stroke therapy. J Pharm Pharmacol. 2012 Nov;64(11):1614-20.

[2]. Wang JY, et al. Licorice zinc suppresses melanogenesis via inhibiting the activation of P38MAPK and JNK signaling pathway in C57BL/6J mice skin. Acta Cir Bras. 2022 Dec 19;37(10):e371002.

[3]. Hisayoshi NoRIMOTO, et al. Effects of keishibukuryoganryokayokuinin (gui-zhi-fu-ling-wanliao-jia-yiyiren) on the Epidermal Pigment Cells from DBA/2 Mice Exposed to Ultraviolet B (UVB) and/or Progesterone. The pharmaceutical Society of Japan. 2011, 131(11):1613-1619.

[4]. Schindler AE, et al. Classification and pharmacology of progestins. Maturitas. 2003 Dec 10;46 Suppl 1:S7-S16.

[5]. Zava DT, et al. Estrogen and progestin bioactivity of foods, herbs, and spices. Proc Soc Exp Biol Med. 1998 Mar;217(3):369-78.

[6]. Komesaroff PA, et al. Effects of wild yam extract on menopausal symptoms, lipids and sex hormones in healthy menopausal women. Climacteric. 2001 Jun;4(2):144-50.

[7]. Girling JE, et al. Progesterone, but not estrogen, stimulates vessel maturation in the mouse endometrium. Endocrinology. 2007 Nov;148(11):5433-41. Epub 2007 Aug 9.

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