Levonorgestrel

Cat. No.: HY-B0257

CAS No.: 797-63-7

Molecular Formula: $C_{21}H_{28}O_2$

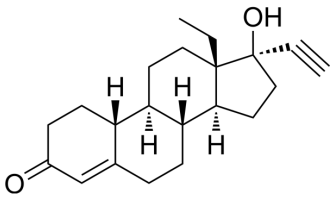
Molecular Weight: 312.45

Target: Apoptosis; Caspase; Bcl-2 Family; Survivin

Pathway: Apoptosis

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 : 100 mg/mL (320.05 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	3.2005 mL	16.0026 mL	32.0051 mL
	5 mM	0.6401 mL	3.2005 mL	6.4010 mL
	10 mM	0.3201 mL	1.6003 mL	3.2005 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.00 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Levonorgestrel is an orally active inhibitor of progesterone (HY-N0437). Levonorgestrel has anticancer activity and can induce Apoptosis. Levonorgestrel can be used as a contraceptive and in combination with other medications. Levonorgestrel can be used in the study of osteoporosis and uterine leiomyoma[1][2][3][4][5].

In Vitro

Levonorgestrel (5-25 mg/mL; 72 h) inhibits cell proliferation and promotes apoptosis in uterine leiomyoma cells in a concentration-dependent manner[1].

Levonorgestrel (0.1-100 μM; 4 h) doesn't affect progesterone production at low doses (0-10 μM), but can inhibit progesterone production at high doses (100 μM) in luteal cells[2].

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

Western Blot Analysis[1]

Cell Line:	Uterine leiomyoma cells
Concentration:	5 mg/mL; 10mg/mL; 20 mg/mL
Incubation Time:	
Result:	Inhibited Bcl-2 and survivin expression at high concentrations (10 mg/mL and 20 mg/mL). Significantly increased the phosphorylation of P38 phosphorylation and increased Caspase-3 expression at high concentrations (10 mg/mL and 20 mg/mL).

In Vivo

Levonorgestrel (0.005-0.15 mg/kg; Once every two days for three weeks) can inhibit bone resorption, decrease bone turnover, and increase bone mineral content in Sprague-Dawley rats[3].
Levonorgestrel (1 mg/kg; Intragastric administration; Once daily for three days) provides effective contraception for Apodemus agrarius mice in combination with quinestrol (HY-B1012)[4].
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Animal Model:	Apodemus agrarius model[4]
Dosage:	1 mg/kg
Administration:	Intragastric administration (i.g.), Once daily for three days
Result:	Damaged the sperm ducts, reduced sperm production in combination with quinestrol. Reduced population density in the field in combination with quinestrol.

CUSTOMER VALIDATION

- Preprints. 2024 Jan 29.

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REFERENCES

[1]. Xu Qing, et al. Levonorgestrel inhibits proliferation and induces apoptosis in uterine leiomyoma cells. Contraception vol. 82,3 (2010): 301-8.

[2]. Tellería C M, et al. Levonorgestrel inhibits luteinizing hormone-stimulated progesterone production in rat luteal cells. The Journal of steroid biochemistry and molecular biology vol. 50,3-4 (1994): 161-6.

[3]. Liao Er-yuan, et al. Effects of different nylestriol/levonorgestrel dosages on bone metabolism in female Sprague-Dawley rats with retinoic acid-induced osteoporosis. Endocrine research vol. 29,1 (2003): 23-42.

[4]. Chen Xiaoning, et al. Anti-fertility effect of levonorgestrel and/or quinestrol on striped field mouse (Apodemus agrarius): evidence from both laboratory and field experiments. Integrative zoology vol. 17,6 (2022): 1041-1052.

[5]. Meng C-X, et al. Effects of oral and vaginal administration of levonorgestrel emergency contraception on markers of endometrial receptivity. Human reproduction (Oxford, England) vol. 25,4 (2010): 874-83.

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

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