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Zuschläge

- Mindermengenzuschlag
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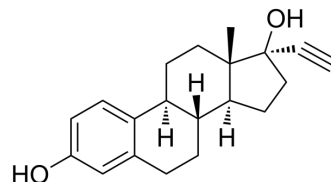
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Ethinylestradiol

Cat. No.:	HY-B0216		
CAS No.:	57-63-6		
Molecular Formula:	C ₂₀ H ₂₄ O ₂		
Molecular Weight:	296.4		
Target:	Estrogen Receptor/ERR; 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 : ≥ 100 mg/mL (337.38 mM)
 H₂O : < 0.1 mg/mL (ultrasonic;warming;heat to 80°C) (insoluble)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent		Mass		
	Concentration		1 mg	5 mg	10 mg
	1 mM		3.3738 mL	16.8691 mL	33.7382 mL
	5 mM		0.6748 mL	3.3738 mL	6.7476 mL
	10 mM		0.3374 mL	1.6869 mL	3.3738 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (8.43 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (8.43 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (8.43 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ethinylestradiol is an orally active steroidal estrogen. Ethinylestradiol is widely used in research on menopausal symptoms, gynecological conditions, and certain hormone-sensitive cancers^[1].

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro	<p>Ethinylestradiol (0.01-10 nM, 24-48 h) increases cGMP formation in RFL6 cells^[2].</p> <p>Ethinylestradiol (0.01-10 nM, 6-48 h) reduces superoxide anion production in BAEC cells in dose- and time-dependent manner^[2].</p> <p>Ethinylestradiol (1-100 nM, 24 h) decreases mRNA (XPC and XPA) abundance and NER capacity in zebrafish liver cells^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>																
In Vivo	<p>Ethinylestradiol (5 mg/kg, s.c., 5 days) increases synthesis and expression of low density lipoprotein-receptor in the liver of female Sprague-Dawley rats at pharmacological doses^[4].</p> <p>Ethinylestradiol (0-50 µg/kg, i.g., daily, 21 days) can have adverse effects on the reproductive development of nulliparous female Wistar rats^[5].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1" data-bbox="347 520 1515 898"> <tr> <td>Animal Model:</td> <td>Female Sprague-Dawley rats^[4]</td> </tr> <tr> <td>Dosage:</td> <td>5 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Subcutaneous injection (s.c.), 5 days</td> </tr> <tr> <td>Result:</td> <td>Decreases plasma cholesterol levels and cholesterol content. Increased low density lipoprotein tissue spaces and clearance rates in the liver. Enhanced the hepatic expression of low density lipoprotein-receptor protein and mRNA. Increased cholesterol synthesis in several extrahepatic tissues, such as adrenals, ovaries, small bowel, and spleen.</td> </tr> </table> <table border="1" data-bbox="347 936 1515 1346"> <tr> <td>Animal Model:</td> <td>Nulliparous female Wistar rats^[5]</td> </tr> <tr> <td>Dosage:</td> <td>0-50 µg/kg</td> </tr> <tr> <td>Administration:</td> <td>i.g., daily, 21 days</td> </tr> <tr> <td>Result:</td> <td>Increased number of nipples and reduced ovary weight in female offspring. Induced malformations of female genitalia. Deepened the width of urethral slits in adult rats. Increased the expression of estrogen-regulated gene in ventral prostate of prepubertal male offspring in a dose-dependent manner. Decreased ventral prostate weight at 15µg/kg in prepubertal male offspring.</td> </tr> </table>	Animal Model:	Female Sprague-Dawley rats ^[4]	Dosage:	5 mg/kg	Administration:	Subcutaneous injection (s.c.), 5 days	Result:	Decreases plasma cholesterol levels and cholesterol content. Increased low density lipoprotein tissue spaces and clearance rates in the liver. Enhanced the hepatic expression of low density lipoprotein-receptor protein and mRNA. Increased cholesterol synthesis in several extrahepatic tissues, such as adrenals, ovaries, small bowel, and spleen.	Animal Model:	Nulliparous female Wistar rats ^[5]	Dosage:	0-50 µg/kg	Administration:	i.g., daily, 21 days	Result:	Increased number of nipples and reduced ovary weight in female offspring. Induced malformations of female genitalia. Deepened the width of urethral slits in adult rats. Increased the expression of estrogen-regulated gene in ventral prostate of prepubertal male offspring in a dose-dependent manner. Decreased ventral prostate weight at 15µg/kg in prepubertal male offspring.
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CUSTOMER VALIDATION

- Cells. 2022, 11(3), 319.
- Preprints. 2024 Jan 29.

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REFERENCES

- [1]. Arnal J F, et al. Ethinylestradiol does not enhance the expression of nitric oxide synthase in bovine endothelial cells but increases the release of bioactive nitric oxide by inhibiting superoxide anion production[J]. Proceedings of the National Academy of Sciences, 1996, 93(9): 4108-4113.
- [2]. Notch EG, et al. 17alpha-Ethinylestradiol hinders nucleotide excision repair in zebrafish liver cells. Aquat Toxicol. 2009 Dec 13;95(4):273-8.

[3]. Bertolotti M, et al. Effect of hypocholesterolemic doses of 17 alpha-ethinyl estradiol on cholesterol balance in liver and extrahepatic tissues. J Lipid Res. 1996 Aug;37(8):1812-22.

[4]. Mandrup KR, et al. Effects of perinatal ethinyl estradiol exposure in male and female Wistar rats. Reprod Toxicol. 2013 Dec;42:180-91.

[5]. Kuhl H. Pharmacology of estrogens and progestogens: influence of different routes of administration. Climacteric. 2005 Aug;8 Suppl 1:3-63.

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