Ecdysone

Cat. No.: HY-N0179

CAS No.: 3604-87-3

Molecular Formula: $C_{27}H_{44}O_6$

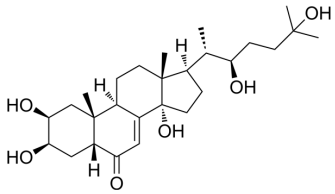
Molecular Weight: 464.63

Target: Endogenous Metabolite; Apoptosis

Pathway: Metabolic Enzyme/Protease; Apoptosis

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (107.61 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1522 mL	10.7611 mL	21.5223 mL
	5 mM	0.4304 mL	2.1522 mL	4.3045 mL
	10 mM	0.2152 mL	1.0761 mL	2.1522 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: ≥ 1.25 mg/mL (2.69 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.25 mg/mL (2.69 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.25 mg/mL (2.69 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ecdysone (α-Ecdysone), a major steroid hormone in insects and herbs, triggers mineralocorticoid receptor (MR) activation and induces cellular apoptosis. Ecdysone plays essential roles in coordinating developmental transitions and homeostatic sleep regulation through its active metabolite 20-hydroxyecdysone (Crustecdysone; 20E; HY-N6979)[1][2].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

Ecdysone (α-Ecdysone; 100 nM; for 48 hours) causes renal tubular inner medullary collecting duct cells (IMCD) apoptosis[1].
Ecdysone (10, 100 nM; for 48 hours) induces the expression of a-smooth muscle actin (SMA), a standard mesenchymal

marker in a dose dependent fashion in inner medullary collecting duct cells (IMCD). Ecdysone elevates the expression of cleaved caspase 3 in a dose dependent fashion[1].
Ecdysone (10, 100 nM; for 12, 24 hours) suppresses cell motility and scratch wound closure to a comparable extent[1].
Ecdysone treatments (100 nM; for 24, 48 hours) induces a branched spindle mesenchymal-like cell shape[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Apoptosis Analysis[1]

Cell Line:	Inner medullary collecting duct cells (IMCD)
Concentration:	100 nM
Incubation Time:	For 48 hours
Result:	Caused renal tubular cell apoptosis.

Western Blot Analysis[1]

Cell Line:	IMCD cells
Concentration:	10, 100 nM
Incubation Time:	For 48 hours
Result:	Induced the expression of a-smooth muscle actin (SMA), a standard mesenchymal marker in a dose dependent fashion.

In Vivo

Ecdysone (α-Ecdysone; 6 μg/g/day; SC; for 14 days) evidently impaires kidney function marked by a statistically significant increase in BUN levels and amplifies renal expression of α-SMA in male C57BL/6 mice aged 10 weeks. Ecdysone confers an MR dependent nephropathic effect[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2024 May 1;15(1):3685.

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REFERENCES

[1]. Minglei Lu, et al. Ecdysone Elicits Chronic Renal Impairment via Mineralocorticoid-Like Pathogenic Activities. Cell Physiol Biochem. 2018;49(4):1633-1645.

[2]. Minglei Lu, et al. Activation of Mineralocorticoid Receptor by Ecdysone, an Adaptogenic and Anabolic Ecdysteroid, Promotes Glomerular Injury and Proteinuria Involving Overactive GSK3β Pathway Signaling. Sci Rep. 2018 Aug 15;8(1):12225.

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