Dinoprost

Cat. No.: HY-12956

CAS No.: 551-11-1

Molecular Formula: $C_{20}H_{34}O_5$

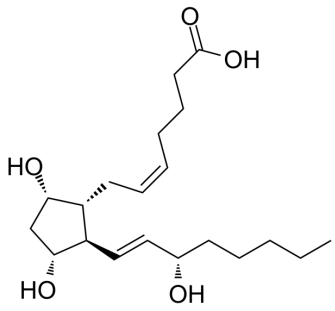
Molecular Weight: 354.48

Target: Prostaglandin Receptor; Endogenous Metabolite; Autophagy; Apoptosis

Pathway: GPCR/G Protein; Metabolic Enzyme/Protease; Autophagy; Apoptosis

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (282.10 mM; Need ultrasonic)

H_2O : 100 mg/mL (282.10 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8210 mL	14.1052 mL	28.2103 mL
	5 mM	0.5642 mL	2.8210 mL	5.6421 mL
	10 mM	0.2821 mL	1.4105 mL	2.8210 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 (7.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Dinoprost (Prostaglandin F2α) is an orally active, potent prostaglandin F (PGF) receptor (FP receptor) agonist. Dinoprost is a luteolytic hormone produced locally in the endometrial luminal epithelium and corpus luteum (CL). Dinoprost plays a key role in the onset and progression of labour[1][2].

IC_{50} & Target		
	FP Receptor	Human Endogenous Metabolite

In Vitro

Dinoprost (Prostaglandin F2α; 1 μM; for 24 hours) induces ER stress, autophagy, and apoptosis in goat luteal cells[1].

Dinoprost (1 μM; for 24 hours) significantly increases the expression of GRP78 and UPR sensors[1].

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

Apoptosis Analysis[1]

Cell Line:	Goat luteal cells
Concentration:	1 μM
Incubation Time:	For 24 hours
Result:	Significantly increased the apoptotic rate (15.62±3.12%).

Cell Autophagy Assay[1]

Cell Line:	Goat luteal cells
Concentration:	1 μM
Incubation Time:	For 24 hours
Result:	There was extensive overlap between LC3 and LAMP1 in luteal cells and autophagolysosomes were formed in goat luteal cells.

Western Blot Analysis[1]

Cell Line:	Goat luteal cells
Concentration:	1 μM
Incubation Time:	For 24 hours
Result:	The expression of GRP78 and UPR sensors including cleaved ATF6, phosphorylated-EIF2S1, EIF2S1, ATF4, phosphorylated-IRE1, autophagy-related protein LC3-II, and pro-apoptosis factor cleaved Caspase3 increased significantly in the cells.

CUSTOMER VALIDATION

- Nat Commun. 2023 May 9;14(1):2668.
- Int J Mol Sci. 2023 Apr 10, 24(8), 7012.

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REFERENCES

[1]. Hagen Thieme, et al. Endothelin antagonism: effects of FP receptor agonists prostaglandin F2alpha and fluprostenol on trabecular meshwork contractility. Invest Ophthalmol Vis Sci. 2006 Mar;47(3):938-45.

[2]. Xin Wen, et al. Prostaglandin F2α Induces Goat Corpus Luteum Regression via Endoplasmic Reticulum Stress and Autophagy. Front Physiol. 2020 Sep 11;11:868.

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