Prostaglandin E2

Cat. No.: HY-101952

CAS No.: 363-24-6

Molecular Formula: $C_{20}H_{32}O_5$

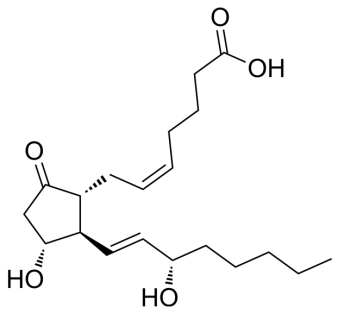
Molecular Weight: 352

Target: Prostaglandin Receptor; Endogenous Metabolite; Organoid

Pathway: GPCR/G Protein; Metabolic Enzyme/Protease; Stem Cell/Wnt

Storage:

Powder	-20°C	3 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (284.09 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8409 mL	14.2045 mL	28.4091 mL
	5 mM	0.5682 mL	2.8409 mL	5.6818 mL
	10 mM	0.2841 mL	1.4205 mL	2.8409 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 (7.10 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.10 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.10 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Prostaglandin E2 (PGE2) is a hormone-like substance that participate in a wide range of body functions such as the contraction and relaxation of smooth muscle, the dilation and constriction of blood vessels, control of blood pressure, and modulation of inflammation.

IC_{50} & Target	EP	Human Endogenous Metabolite

In Vitro

PGE2 shows inhibition of IL 2 production in the mixture of irradiated and nonirradiated T lymphocytes. PGE2 (0.1-10 μM) dose-dependently inhibits the production of IL 2. PGE2 acts during the inductive phase of activation of suppressor cells.

	Preincubation of T lymphocytes with PGE2 induces cells that suppress IL 2 production and PHA proliferation[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Prostaglandin E2 can be used in animal modeling to construct a rat pain model. PGE2 (0.3 μg/k, i.p.) significantly reduces the number of peritoneab macrophages undergoing phagocytosis of the methacrybate microbeads in rats[2]. PGE2 (0.1 mg/min, i.a.) increases renal blood flow. PGE2 produces a biphasic change in renal vascular resistance, vasodilatation starts at 0.01 mg/min and is maximal at about 3 mg/min, while at the highest dose used (20 mg/min) PGE2 induces renal vasoconstriction[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Lymphocytes in CM (1×10^6 cells/mL) are ditributed in microculture plates (100 μL) in triplicate in the presence of PGE-treated T cells or medium-treated T cells and stimulated with PHA-P at various mitogenic doses. After 72 hr, cultures are pulsed with 1 μCi [^{3}H]thymidine per well (specific activity 5 Ci/mM) for 16 to 18 hr, collected with amicropreciplтator, dried, and counted in a liquid scintillation counter. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Male Sprague Dawley rats (200-250 g) are used throughout the study. For 3 consecutive days rats in the experimental groups receive a daily intraperitoneal injection of either PGE2 (0.3 μg/kg body weight (BW)), the prostaglandin inhibitor mecbofenamate (10 mg/kg BW) or the prostaglandin precursor arachidonic acid (0.3 μg/ kg BW). To determine whether or not 0.3 μg/kg BW of a fatty acid produces nonspecific effects, the biologically inactive fatty acid 11, 14, 17-eicosatrienoic acid is also administered to a group of rats. Rats in the control group receive an equivalent volume (2.0 mL/kg BW) of the vehicle. On the third day, 3 mL of a suspension containing 1.2×10^6 fluorescent methacrylate microbeads/mL of PBS are injected intraperitoneally (ip) into each rat. Six hours later all animals are given ip a regular dose of their respective treatment. Peritoneal exudate cells are harvested 19-22 hr later. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell. 2023 Dec 7;186(25):5500-5516.e21.
- Nat Biomed Eng. 2023 Mar;7(3):281-297.
- Cell Stem Cell. 2021 Sep 2;28(9):1597-1613.e7.
- Int J Oral Sci. 2023 Sep 7;15(1):38.
- J Exp Clin Cancer Res. 2020 Jun 16;39(1):113.

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REFERENCES

[1]. Chouaib S, et al. The mechanisms of inhibition of human IL 2 production. II. PGE2 induction of suppressor T lymphocytes. J Immunol. 1984 Apr;132(4):1851-7.

[2]. Fernandez-Repollet E, et al. In vivo effects of prostaglandin E2 and arachidonic acid on phagocytosis of fluorescent methacrylate microbeads by rat peritoneal macrophages. J Histochem Cytochem. 1982 May;30(5):466-70.

[3]. Haylor J, et al. Renal vasodilator activity of prostaglandin E2 in the rat anaesthetized with pentobarbitone. Br J Pharmacol. 1982 May;76(1):131-7.

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

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