Small Molecules

Prostaglandin E2

Prostanoid pathway activator;

Activates prostaglandin receptors EP1, EP2, EP3 and EP4

Catalog #	72192	1 mg
	72194	5 mg

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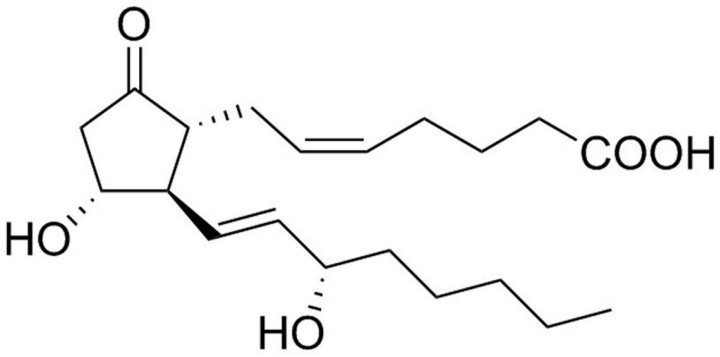
Product Description

Prostaglandin E_2 (PGE_2) is one of the major products of the arachadonic acid/cyclooxygenase pathway and is the most biologically active and well-studied prostaglandin. It binds with very high affinity to the prostaglandin receptors EP1, EP2, EP3, and EP4 (Ki = 9.1, 4.9, 0.33, 0.79 nM respectively; Abramovitz et al.; Bos et al.).

Molecular Name:	Prostaglandin E2
Alternative Names:	PGE2; Dinoprostone
CAS Number:	363-24-6
Chemical Formula:	$C_{20}H_{32}O_5$
Molecular Weight:	352.5 g/mol
Purity:	≥ 98%
Chemical Name:	9-oxo-11α,15S-dihydroxy-prosta-5Z,13E-dien-1-oic acid
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	· PBS (pH 7.2) ≤ 14 mM · DMSO ≤ 280 mM · Absolute ethanol ≤ 280 mM For example, to prepare a 5 mM stock solution in PBS, resuspend 1 mg in 567 µL of PBS (pH 7.2).

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

MAINTENANCE AND SELF-RENEWAL
· Required for the development of hematopoietic stem cells (HSCs) in mice and zebrafish (North et al.).
· Improves engraftment of mouse HSCs, possibly through increasing homing, survival, and/or self-renewal (Hoggatt et al. 2009; Hoggatt et al. 2013, North et al.).
DIFFERENTIATION
· Promotes differentiation of hematopoietic progenitor cells from mouse, macaque, and human embryonic stem cells (Gori et al.; North et al.; Woods et al.).
· Promotes differentiation of myeloid-derived suppressor cells from hematopoietic progenitors (Sinha et al.).
· Promotes differentiation of Th17 cells from naïve T-cells (Boniface et al.).

References

Abramovitz M et al. (2000) The utilization of recombinant prostanoid receptors to determine the affinities and selectivities of prostaglandins and related analogs. Biochim Biophys Acta 1483(2): 285–93.
Boniface K et al. (2009) Prostaglandin E2 regulates Th17 cell differentiation and function through cyclic AMP and EP2/EP4 receptor signaling. J Exp Med 206(3): 535–48.
Bos CL et al. (2004) Prostanoids and prostanoid receptors in signal transduction. Int J Biochem Cell Biol 36(7): 1187–205.
Gori JL et al. (2012) Efficient generation, purification, and expansion of CD34(+) hematopoietic progenitor cells from nonhuman primate-induced pluripotent stem cells. Blood 120(13): e35–44.
Hoggatt J et al. (2009) Prostaglandin E2 enhances hematopoietic stem cell homing, survival, and proliferation. Blood 113(22): 5444–55.
Hoggatt J et al. (2013) Prostaglandin E2 enhances long-term repopulation but does not permanently alter inherent stem cell competitiveness. Blood 122(17): 2997–3000.
North TE et al. (2007) Prostaglandin E2 regulates vertebrate haematopoietic stem cell homeostasis. Nature 447(7147): 1007–11.
Sinha P et al. (2007) Prostaglandin E2 promotes tumor progression by inducing myeloid-derived suppressor cells. Cancer Res 67(9): 4507–13.
Woods N-B et al. (2011) Brief report: efficient generation of hematopoietic precursors and progenitors from human pluripotent stem cell lines. Stem Cells 29(7): 1158–64.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).