

## Small Molecules

### Prostaglandin E2

Prostanoid pathway activator; Activates prostaglandin receptors EP1, EP2, EP3, and EP4

Catalog # 72192  
72194

1 mg  
5 mg



Scientists Helping Scientists™ | WWW.STEMCELL.COM

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

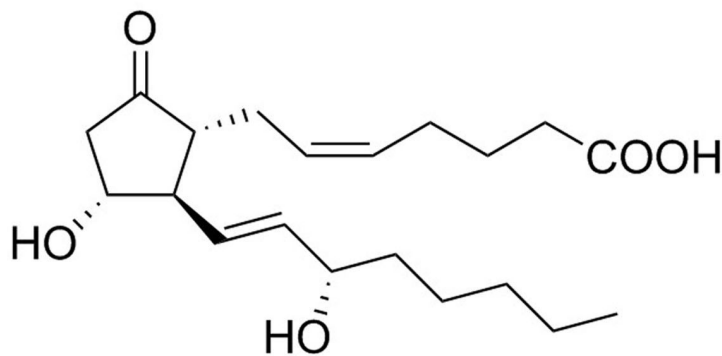
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

## Product Description

Prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) 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 (K<sub>i</sub> = 9.1, 4.9, 0.33, 0.79 nM respectively; Abramovitz et al.; Bos et al.).

|                    |  |
|--------------------|--|
| Molecular Name:    | Prostaglandin E2   |
| Alternative Names: | Dinoprostone; PGE2   |
| CAS Number:        | 363-24-6   |
| Chemical Formula:  | C <sub>20</sub> H <sub>32</sub> O <sub>5</sub>                 |
| Molecular Weight:  | 352.5 g/mol  |
| Purity:            | ≥ 98%  |
| Chemical Name:     | 9-oxo-11 $\alpha$ ,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.<br>Stable as supplied for 12 months from date of receipt.   |
| Solubility:          | · PBS (pH 7.2) ≤ 14 mM<br>· DMSO ≤ 280 mM<br>· Absolute ethanol ≤ 280 mM<br>For example, to prepare a 5 mM stock solution in PBS, resuspend 1 mg in 567 $\mu$ L 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

For a complete list of small molecules available from STEMCELL Technologies, visit [www.stemcell.com/smallmolecules](http://www.stemcell.com/smallmolecules) or contact us at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

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

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Copyright © 2017 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, and Scientists Helping Scientists are trademarks of STEMCELL Technologies Canada Inc. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.