

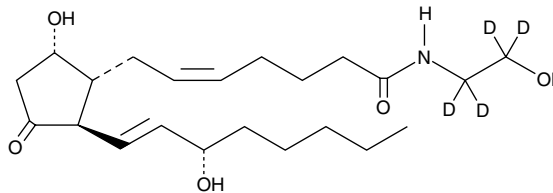
# Product Information



## Prostaglandin D<sub>2</sub> Ethanolamide-d<sub>4</sub>

Item No. 9001413

**Formal Name:** N-(2-hydroxyethyl)-11-oxo-9 $\alpha$ ,15S-dihydroxy-prosta-5Z,13E-dien-1-amide-d<sub>4</sub>  
**Synonyms:** PGD<sub>2</sub>-EA-d<sub>4</sub>, Prostamide D<sub>2</sub>-d<sub>4</sub>  
**MF:** C<sub>22</sub>H<sub>33</sub>D<sub>4</sub>NO<sub>5</sub>  
**FW:** 399.6  
**Chemical Purity:** ≥95% PGD<sub>2</sub>-EA  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in ethanol



### Laboratory Procedures

Prostaglandin D<sub>2</sub> ethanolamide-d<sub>4</sub> (PGD<sub>2</sub>-EA-d<sub>4</sub>) contains four deuterium atoms. It is intended for use as an internal standard for the quantification of PGD<sub>2</sub>-EA by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that PGD<sub>2</sub>-EA-d<sub>4</sub> be stored as supplied at -20°C. It should be stable for at least one year.

PGD<sub>2</sub>-EA-d<sub>4</sub> is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of PGD<sub>2</sub>-EA-d<sub>4</sub> in ethanol is approximately 12.5 mg/ml and approximately 8.3 mg/ml in DMSO and DMF.

PGD<sub>2</sub>-EA-d<sub>4</sub> is used as an internal standard for the quantification of PGD<sub>2</sub>-EA by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

PGD<sub>2</sub>-EA is a bioactive lipid produced by the sequential metabolism of anandamide (arachidonoyl ethanolamide) by cyclooxygenase (COX) enzymes, in particular by COX-2, and PGD synthase.<sup>1-3</sup> The biosynthesis of PGD<sub>2</sub>-EA from anandamide can also be increased when anandamide metabolism is diminished by deletion of fatty acid amide hydrolase.<sup>4</sup> PGD<sub>2</sub>-EA is inactive against recombinant prostanoid receptors, including the D prostanoid receptor.<sup>5</sup> It increases the frequency of miniature inhibitory postsynaptic currents in primary cultured hippocampal neurons, an effect which is the opposite of that induced by anandamide.<sup>3</sup> PGD<sub>2</sub>-EA also induces apoptosis in colorectal carcinoma cell lines.<sup>2</sup>

### References

1. Kozak, K.R., Crews, B.C., Morrow, J.D., *et al.* Metabolism of the endocannabinoids, 2-arachidonylglycerol and anandamide, into prostaglandin, thromboxane, and prostacyclin glycerol esters and ethanolamides. *J. Biol. Chem.* **277**(47), 44877-44885 (2002).
2. Patsos, H.A., Hicks, D.J., Dobson, R.R.H., *et al.* The endogenous cannabinoid, anandamide, induces cell death in colorectal carcinoma cells: A possible role for cyclooxygenase 2. *Gut* **54**(12), 1741-1750 (2005).
3. Sang, N., Zhang, J., and Chen, C. PGE<sub>2</sub> glycerol ester, a COX-2 oxidative metabolite of 2-arachidonoyl glycerol, modulates inhibitory synaptic transmission in mouse hippocampal neurons. *J. Physiol.* **572**, 735-745 (2006).
4. Weber, A., Ni, J., Ling, K.-H.J., *et al.* Formation of prostamides from anandamide in FAAH knockout mice analyzed by HPLC with tandem mass spectrometry. *J. Lipid Res.* **45**, 757-763 (2004).
5. Matias, I., Chen, J., De Petrocellis, L., *et al.* Prostaglandin ethanolamides (prostamides): *In vitro* pharmacology and metabolism. *J. Pharmacol. Exp. Ther.* **309**(2), 745-757 (2004).

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**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

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