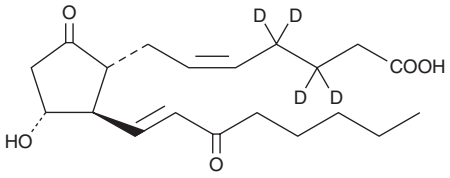
PRODUCT INFORMATION

15-keto Prostaglandin E_2-d_4

Item No. 19349

CAS Registry No.:	2738376-85-5
Formal Name:	9,15-dioxo-11a-hydroxy-prosta-5Z,13E-dien-1-oic-3,3,4,4-d_4 acid
Synonyms:	15-keto PGE_2-d_4, 15-oxo PGE_2-d_4
MF:	$C_{20}H_{26}D_4O_5$
FW:	354.5
Chemical Purity:	≥98% (15-keto Prostaglandin E_2)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_4); ≤1% d_0
Supplied as:	A solution in methyl acetate
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

15-keto Prostaglandin E_2-d_4 (15-keto PGE_2-d_4) is intended for use as an internal standard for the quantification of 15-keto PGE_2 (Item No. 14720) by GC- or LC-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).

15-keto PGE_2-d_4 is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of 15-keto PGE_2-d_4 in these solvents is approximately 50 mg/ml.

Description

15-keto PGE_2 is a metabolite of PGE_2 (Item No. 14010) formed by 15-hydroxy prostaglandin dehydrogenase (15-PGDH).[1] Unlike PGE_2, 15-keto PGE_2 does not bind effectively to the PGE_2 receptors EP_2 and EP_4 expressed in CHO cells (K_is = 2.6 and 15 µM, respectively) or induce adenylate cyclase activity in the same cells (EC_{50}s = 1.8 and >33 µM, respectively). However, it does bind to EP_2 and EP_4 in HEK cells expressing these receptors (IC_{50}s = 0.117 and 2.82 µM, respectively), as well as induces cAMP formation (EC_{50}s = 0.137 and 0.426 µM, respectively) and the transcriptional activity of β-catenin/TCF in the same cells.[2] 15-keto PGE_2 inhibits CD3-CD28-MHC-I-induced proliferation of isolated human $CD4^+$ T cells in a concentration-dependent manner.[3] It also reduces mortality in a mouse model of LPS-induced sepsis when administered at a dose of 15 mg/kg.[4]

References

1. Nishigaki, N., Negishi, M., and Ichikawa, A. Two G_s-coupled prostaglandin E receptor subtypes, EP2 and EP4, differ in desensitization and sensitivity to the metabolic inactivation of the agonist. *Mol. Pharmacol.* **50(4)**, 1031-1037 (1996).
2. Endo, S., Suganami, A., Fukushima, K., *et al.* 15-Keto-PGE_2 acts as a biased/partial agonist to terminate PGE_2-evoked signaling. *J. Biol. Chem.* **295(38)**, 13338-13352 (2020).
3. Schmidleithner, L., Thabet, Y., Schönfeld, E., *et al.* Enzymatic activity of HPGD in Treg cells suppresses Tconv cells to maintain adipose tissue homeostasis and prevent metabolic dysfunction. *Immunity* **50(5)**, 1232-1248 (2019).
4. Chen, I.-J., Hee, S.-W., Liao, C.-H., *et al.* Targeting the 15-keto-PGE2-PTGR2 axis modulates systemic inflammation and survival in experimental sepsis. *Free Radic. Biol. Med.* **115**, 113-126 (2018).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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