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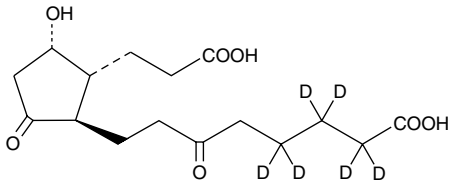
Product Information

tetranor-PGDM-d_6

Item No. 10009039

CAS Registry No.: 1314905-92-4
Formal Name: 9α-hydroxy-11,15-dioxo-2,3,4,5-tetranor-prostan-17,17,18,18,19,19-d_6-1,20-dioic acid
Synonym: tetranor-Prostaglandin D Metabolite-d_6
MF: $C_{16}H_{18}O_7D_6$
FW: 334.4
Chemical Purity: ≥90%
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_6); ≤1% d_0
Stability: ≥6 months at -80°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

tetranor-PGDM-d_6 contains six deuterium atoms at the 17, 17', 18, 18', 19 and 19' positions. It is intended for use as an internal standard for the quantification of tetranor-PGDM by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that tetranor-PGDM-d_6 be stored as supplied at -80˚C. It will be stable for at least six months.

tetranor-PGDM-d_6 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 DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of tetranor-PGDM-d_6 in these solvents is approximately 50 mg/ml.

tetranor-PGDM-d_6 is used as an internal standard for the quantification of tetranor-PGDM 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).

Prostaglandin D_2 (PGD_2) is synthesized by hematopoietic-type PGD-synthase (H-PGDS) in mast cells and is released in large quantities during allergic and asthmatic anaphylaxis.[1] PGD_2 is also produced in the brain by lipocalin PGD-synthase also known as β-trace.[2,3] In the brain, PGD_2 produces normal physiological sleep and lowering of body temperature.[2,3] Further pharmacological actions include inhibition of platelet aggregation and relaxation of vascular smooth muscle.[4] tetranor-PGDM is a major metabolite of PGD_2 that is detectable in human and murine urine.[5] The levels of tetranor-PGDM and 2,3-dinor-11β-$PGF_{2\alpha}$, a related PGD_2 metabolite, in human urine were found to be 1.5 ± 0.3 and 0.6 ± ng/mg creatinine, respectively. tetranor-PGDM was detected in mouse urine at a level of 8.1 ± 1.3 ng/mg creatinine.[5]

References

1. Roberts, L.J., II and Sweetman, B.J. Metabolic fate of endogenously synthesized prostaglandin D_2 in a human female with mastocytosis. *Prostaglandins* **30**, 383-400 (1985).
2. Hayaishi, O. Sleep-wake regulation by prostaglandins D_2 and E_2. *J. Biol. Chem.* **263**, 14593-14596 (1988).
3. Onoe, H., Ueno, R., Fujita, I., *et al.* Prostaglandin D_2, a cerebral sleep-inducing substance in monkeys. *Proc. Natl. Acad. Sci. USA* **85**, 4082-4086 (1988).
4. Giles, H. and Leff, P. The biology and pharmacology of PGD_2. *Prostaglandins* **35**, 277-300 (1988).
5. Song, W.-L., Wang, M., Ricciotti, E., *et al.* Tetranor PGDM, an abundant urinary metabolite reflects biosynthesis of prostaglandin D_2 in mice and humans. *J. Biol. Chem.* **283(2)**, 1179-1188 (2008).

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