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Product Information



10-Nitrooleate-d₁₇

Item No. 10558

Formal Name: 10-nitro-9E-octadecenoic-11,11,12,12,13,13,14,14,15,15,16,16,17,17,18,18,18-d₁₇ acid

Synonyms: 10-Nitrooleic Acid-d₁₇, 10-nitro-9-*trans*-Octadecenoic Acid-d₁₇

MF: C₁₈H₁₆D₁₇NO₄

FW: 344.6

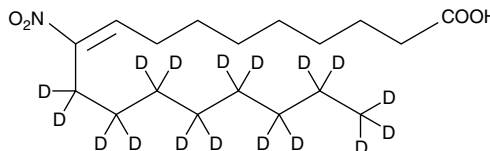
Chemical Purity: ≥98%

Deuterium Incorporation: ≥99% deuterated forms (d₁-d₁₇); ≤1% d₀

Stability: ≥1 year at -20°C

Supplied as: A solution in ethanol

UV/Vis.: λ_{max}: 256 nm



Laboratory Procedures

10-Nitrooleate-d₁₇ contains 17 deuterium atoms at the 11, 11, 12, 12, 13, 13, 14, 14, 15, 15, 16, 16, 17, 17, 18, 18, and 18 positions. It is intended for use as an internal standard for the quantification of 10-nitrooleate (Item No. 10008043) by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that 10-nitrooleate-d₁₇ be stored as supplied at -20°C. It should be stable for at least one year.

10-Nitrooleate-d₁₇ 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 DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of 10-nitrooleate in these solvents is approximately 1 mg/ml.

10-Nitrooleate-d₁₇ is used as an internal standard for the quantification of 10-nitrooleate 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).

Nitrated unsaturated fatty acids, such as 10- and 12-nitrolinoleate (LNO₂; Item No. 10037), cholesteryl nitrolinoleate, and nitrohydroxylinoleate, represent a new class of endogenous lipid-derived signalling molecules. LNO₂ isomers serve as potent endogenous ligands for PPAR γ and can also decompose or be metabolized to release nitric oxide.¹⁻⁴ 10-Nitrooleate is one of two regioisomers of nitrooleate, the other being 9-nitrooleate (Item No. 10008042) (OA-NO₂; used for the mixture of isomers), which are formed by nitration of oleic acid (Item No. 90260) in approximately equal proportions *in vivo*.⁵ Peroxynitrite, acidified nitrite, and myeloperoxidase in the presence of H₂O₂ and nitrite, all mediate the nitration of oleic acid. OA-NO₂ is found in human plasma as the free acid and esterified in phospholipids at concentrations of 619 ± 52 nM and 302 ± 369 nM, respectively. OA-NO₂ activates PPAR γ approximately 7-fold at a concentration of 1 μM and effectively promotes differentiation 3T3-L1 preadipocytes to adipocytes at 3 μM.⁵

References

1. Lim, D.G., Sweeney, S., Bloodsworth, A., *et al. Proc. Natl. Acad. Sci. USA* **99**(25), 15941-15946 (2002).
2. Schopfer, F.J., Lin, Y., Baker, P.R.S., *et al. Proc. Natl. Acad. Sci. USA* **102**(7), 2340-2345 (2005).
3. Lima, E.S., Bonini, M.G., Augusto, O., *et al. Free Radic. Biol. Med.* **39**, 532-539 (2005).
4. Baker, P.R.S., Schopfer, F.J., Sweeney, S., *et al. Proc. Natl. Acad. Sci. USA* **101**(32), 11577-11582 (2004).
5. Baker, P.R., Lin, Y., Schopfer, F.J., *et al. J. Biol. Chem.* **280**(51), 42464-42475 (2005).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/10558

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

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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