

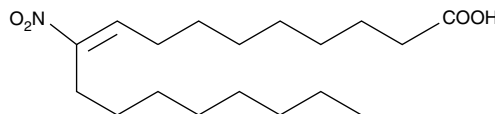
Product Information



10-Nitrooleate

Item No. 10008043

CAS Registry No.: 875685-46-4
Formal Name: 10-nitro-9E-octadecenoic acid
Synonyms: 10-Nitrooleic Acid,
10-nitro-9-*trans*-Octadecenoic Acid
MF: C₁₈H₃₃NO₄
FW: 327.5
Purity: ≥98%
Stability: ≥1 year at -20°C
Supplied as: A solution in ethanol
UV/Vis.: λ_{max}: 255 nm



Laboratory Procedures

For long term storage, we suggest that 10-nitrooleate be stored as supplied at -20°C. It should be stable for at least one year.

10-Nitrooleate 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. We do not recommend storing the aqueous solution for more than one day.

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 PPARγ 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 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 PPARγ 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.* Nitrolinoleate, a nitric oxide-derived mediator of cell function: Synthesis, characterization, and vasomotor activity. *Proc. Natl. Acad. Sci. USA* **99(25)**, 15941-15946 (2002).
2. Schopfer, F.J., Lin, Y., Baker, P.R.S., *et al.* Nitrolinoleic acid: An endogenous peroxisome proliferator-activated receptor γ ligand. *Proc. Natl. Acad. Sci. USA* **102(7)**, 2340-2345 (2005).
3. Lima, E.S., Bonini, M.G., Augusto, O., *et al.* Nitrated lipids decompose to nitric oxide and lipid radicals and cause vasorelaxation. *Free Radic. Biol. Med.* **39**, 532-539 (2005).
4. Baker, P.R.S., Schopfer, F.J., Sweeney, S., *et al.* Red cell membrane and plasma linoleic acid nitration products: Synthesis, clinical identification, and quantitation. *Proc. Natl. Acad. Sci. USA* **101(32)**, 11577-11582 (2004).
5. Baker, P.R., Lin, Y., Schopfer, F.J., *et al.* Fatty acid transduction of nitric oxide signaling. Multiple nitrated unsaturated acid derivatives exist in human blood and urine serve as endogenous peroxisome proliferator-activated receptor ligands. *J. Biol. Chem.* **280(51)**, 42464-42475 (2005).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/10008043

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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