

PRODUCT INFORMATION



9-Nitrooleate

Item No. 10008042

CAS Registry No.: 875685-44-2
Formal Name: 9-nitro-9E-octadecenoic acid
Synonyms: 9-Nitrooleic Acid,
9-nitro-9-trans-Octadecenoic Acid
MF: C₁₈H₃₃NO₄
FW: 327.5
Purity: ≥98%
UV/Vis.: λ_{max}: 255 nm
Supplied as: A solution in ethanol
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

9-Nitrooleate is supplied as a solution in ethanol. To change the solvent, simply evaporate the 9-nitrooleate 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 9-nitrooleate in these solvents is approximately 1 mg/ml.

Description

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 9-Nitrooleate is one of two regioisomers of nitrooleate, the other being 10-nitrooleate (Item No. 10008043) (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 PPAR γ approximately 7-fold at a concentration of 1 μ M and effectively promotes the differentiation of 3T3-L1 preadipocytes to adipocytes at 3 μ M.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(4)**, 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).

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.

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