

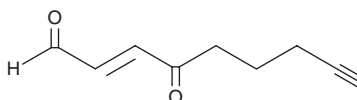
PRODUCT INFORMATION



4-oxo-2-Nonenal Alkyne

Item No. 17104

CAS Registry No.: 1680193-58-1
Formal Name: 4-oxo-2E-Nonen-8-ynal
Synonyms: 4-ONE Alkyne, Alkynyl 4-oxo-2-Nonenal, Click Tag™ 4-oxo-2-Nonenal Alkyne
MF: C₉H₁₀O₂
FW: 150.2
Purity: ≥98%
UV/Vis.: λ_{max}: 226 nm
Supplied as: A 1 mg/ml solution in methyl acetate
Storage: -80°C
Stability: ≥1 year



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

Laboratory Procedures

4-oxo-2-Nonenal (4-ONE) alkyne 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 (DMF) purged with an inert gas can be used. The solubility of 4-ONE alkyne in ethanol is approximately 10 mg/ml and approximately 1 mg/ml in DMSO and DMF.

4-ONE alkyne is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the methyl acetate solution of 4-ONE alkyne should be diluted with the aqueous buffer of choice. The solubility of 4-ONE alkyne in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

4-ONE (Item No. 10185) is a product of lipid peroxidation that actively modifies histidine and lysine residues on proteins and causes protein cross-linking.¹⁻⁵ It also modifies 2'-deoxyguanosine, further implicating lipid peroxidation in mutagenesis and carcinogenesis.¹ 4-ONE alkyne is an alkyne-tagged electrophile that can be used as a probe to isolate and identify the reaction products of lipid peroxidation using click chemistry.^{6,7}

References

1. Rindgen, D., Nakajima, M., Wehrl, S., *et al.* Covalent modifications to 2'-deoxyguanosine by 4-oxo-nonenal, a novel product of lipid peroxidation. *Chem. Res. Toxicol.* **12(12)**, 1195-1204 (1999).
2. Lee, S.H. and Blair, I.A. Characterization of 4-oxo-2-nonenal as a novel product of lipid peroxidation. *Chem. Res. Toxicol.* **13(8)**, 698-702 (2000).
3. Spiteller, P., Kern, W., Reiner, J., *et al.* Aldehydic lipid peroxidation products derived from linoleic acid. *Biochim. Biophys. Acta* **1531(3)**, 188-208 (2001).
4. Liu, Z., Minkler, P.E., and Sayre, L.M. Mass spectroscopic characterization of protein modification by 4-hydroxy-2-(E)-nonenal and 4-oxo-2-(E)-nonenal. *Chem. Res. Toxicol.* **16(7)**, 901-911 (2003).
5. Zhang, W.H., Liu, J., Xu, G., *et al.* Model studies on protein side chain modification by 4-oxo-2-nonenal. *Chem. Res. Toxicol.* **16(4)**, 512-523 (2003).
6. Wang, C., Weerapana, E., Blewett, M.M., *et al.* A chemoproteomic platform to quantitatively map targets of lipid-derived electrophiles. *Nat. Methods* **11(1)**, 79-85 (2014).
7. Beavers, W.N., Serwa, R., Shimozu, Y., *et al.* ω-Alkynyl lipid surrogates for polyunsaturated fatty acids: Free radical and enzymatic oxidations. *J. Am. Chem. Soc.* **136(32)**, 11529-11539 (2014).

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

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 11/12/2025

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM