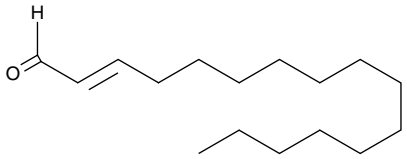
Product Information

(E)-2-Hexadecenal

Item No. 17566

CAS Registry No.: 22644-96-8
Formal Name: (2E)-2-hexadecenal
Synonym: *trans*-2-Hexadecenal
MF: $C_{16}H_{30}O$
FW: 238.4
Purity: ≥95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 218 nm



Laboratory Procedures

For long term storage, we suggest that (E)-2-hexadecenal be stored as supplied at -20°C. It should be stable for at least two years.

(E)-2-Hexadecenal is supplied as a crystalline solid. A stock solution may be made by dissolving the (E)-2-hexadecenal in the solvent of choice. (E)-2-Hexadecenal is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of (E)-2-hexadecenal in ethanol and DMF is approximately 30 mg/ml and approximately 10 mg/ml DMSO.

(E)-2-Hexadecenal is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (E)-2-hexadecenal should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. (E)-2-Hexadecenal has a solubility of approximately 0.3 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Sphingosine-1-phosphate (S1P), a bioactive lipid involved in many signaling processes, is irreversibly degraded by the membrane-bound S1P lyase. (E)-2-Hexadecenal is a sphingolipid degradation product resulting from the action of S1P lyase. It can be further oxidized to (2E)-hexadecenoic acid by long-chain fatty aldehyde dehydrogenase prior to activation *via* coupling to coenzyme A. (E)-2-Hexadecenal has been shown to induce cytoskeletal reorganization that results in cell rounding, detachment, activation of downstream JNK targets, and eventual apoptosis in various cell types.[1] It reacts readily with deoxyguanosine and DNA to form aldehyde-derived DNA adducts.[2]

References

1. Kumar, A., Byun, H.-S., Bittman, R., *et al.* The sphingolipid degradation product *trans*-2-hexadecenal induces cytoskeletal reorganization and apoptosis in a JNK-dependent manner. *Cell. Signal.* **23(7)**, 1144-1152 (2011).
2. Upadhyaya, P., Kumar, A., Byun, H.-S., *et al.* The sphingolipid degradation product *trans*-2-hexadecenal forms adducts with DNA. Biochem. *Biophys. Res. Commun.* **424(1)**, 18-21 (2012).

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Cayman Chemical

Mailing address
1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone
(800) 364-9897
(734) 971-3335

Fax
(734) 971-3640

E-Mail
custserv@caymanchem.com

Web
www.caymanchem.com