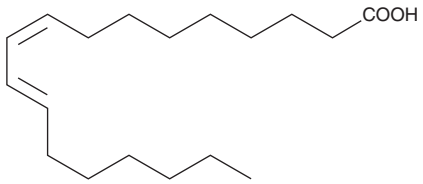
PRODUCT INFORMATION

9(Z),11(E)-Conjugated Linoleic Acid

Item No. 90140

CAS Registry No.: 2540-56-9
Formal Name: 9Z,11E-octadecadienoic acid
Synonyms: 9Z,11E-CLA, *cis*-9,*trans*-11-Conjugated Linoleic Acid, FA 18:2
MF: $C_{18}H_{32}O_2$
FW: 280.5
Purity: ≥98%
UV/Vis.: λ_{max}: 233 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(Z),11(E)-Conjugated linoleic acid (CLA) is supplied as a solution in ethanol. To change the solvent, simply evaporate the CLA under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of CLA in these solvents is at least 100 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. CLA is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the ethanolic solution of CLA should be diluted with the aqueous buffer of choice. CLA has a solubility of 1 mg/ml in a 0.15 M solution of Tris-HCl (pH 8.5) using this method. If an organic solvent-free solution of CLA is needed, it can be prepared by evaporating the CLA and directly dissolving the neat oil in aqueous buffers. The solubility of CLA in PBS (pH 7.2) is approximately 100 µg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

9(Z),11(E)-Conjugated linoleic acid is an isomer of linoleic acid (Item Nos. 90150 | 90150.1 | 21909) that has been found in beef and milk fat.[1] It binds to peroxisome proliferator-activated receptor α (PPARα; IC_{50} = 140 nM) and activates the receptor in a reporter assay using COS-1 cells expressing mouse PPARα when used at a concentration of 100 µM.[2] 9(Z),11(E)-Conjugated linoleic acid inhibits TNF-α-induced *GLUT4* expression and increases insulin-stimulated glucose transport in 3T3-L1 adipocytes.[3] Dietary administration of 9(Z)11(E)-conjugated linoleic acid reduces serum fasting glucose, insulin, and triglyceride levels and decreases white adipose tissue macrophage infiltration in *ob/ob* mice. It also increases body weight gain and body fat in weanling mice.[4]

References

1. Shultz, T.D., Chew, B.P., Seaman, W.R., *et al. Cancer Lett.* **63(2)**, 125-133 (1992).
2. Moya-Camarena, S.Y., Heuvel, J.P.V., Blanchard, S.G., *et al. J. Lipid Res.* **40(8)**, 1426-1433 (1999).
3. Moloney, F., Toomey, S., Noone, E., *et al. Diabetes* **56(3)**, 574-582 (2007).
4. Pariza, M.W., Park, Y., and Cook, M.E. *Prog. Lipid Res.* **40(4)**, 283-298 (2001).

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