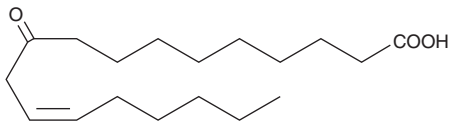
PRODUCT INFORMATION

10-oxo-12(Z)-Octadecenoic Acid

Item No. 36977

CAS Registry No.: 103521-29-5
Synonyms: 10-keto-12Z-Octadecenoic Acid, 10-oxo-12-*cis*-Octadecenoic Acid,
MF: $C_{18}H_{32}O_3$
FW: 296.5
Purity: ≥95%
Supplied as: A 1 mg/ml solution in ethanol
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

10-oxo-12(Z)-Octadecenoic acid 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 DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of 10-oxo-12(Z)-octadecenoic acid in these solvents is approximately 5 and 10 mg/ml, respectively.

Description

10-oxo-12(Z)-Octadecenoic acid is a metabolite of linoleic acid (Item Nos. 90150 | 90150.1 | 21909) and an activator of transient receptor potential vanilloid 1 (TRPV1).[1,2] It is formed from linoleic acid by conjugated linoleic acid dehydrogenase (CLA-DH) *via* a 10-hydroxy-12(Z)-octadecenoic acid intermediate and can also be produced from linoleic acid by gut microbiota.[1] 10-oxo-12(Z)-Octadecenoic acid (100 µM) selectively increases calcium levels in HEK293 cells expressing TRPV1 over those expressing TRPV2, TRPV3, TRPV4, and TRP melastatin 8 (TRPM8).[2] It also induces inward currents in HEK293 cells expressing TRPV1, an effect that can be blocked by the TRPV1 antagonist capsazepine (Item No. 10007518). Dietary administration of 10-oxo-12(Z)-octadecenoic acid (0.1% w/w) reduces weight gain and adipose tissue weight and increases the expression of the gene encoding mitochondrial uncoupling protein 1 (Ucp1) in wild-type, but not *Trpv1* knockout, mice fed a high-fat diet. It also decreases plasma glucose and triglyceride levels in diabetic KKAy mice fed a high-fat diet.

References

1. Kishino, S., Takeuchi, M., Park, S.-B., *et al.* Polyunsaturated fatty acid saturation by gut lactic acid bacteria affecting host lipid composition. *Proc. Natl. Acad. Sci. USA* **110(44)**, 17808-17813 (2013).
2. Kim, M., Furuzono, T., Yamakuni, K., *et al.* 10-oxo-12(Z)-octadecenoic acid, a linoleic acid metabolite produced by gut lactic acid bacteria, enhances energy metabolism by activation of TRPV1. *FASEB J.* **3(11)**, 5036-5048 (2017).

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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