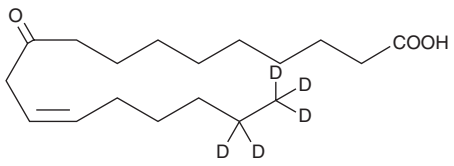
PRODUCT INFORMATION

10-oxo-12(Z)-Octadecenoic Acid-d_5

Item No. 36986

Formal Name: (Z)-10-oxooctadec-12-enoic-17,17,18,18,18-d_5 acid
Synonyms: 10-keto-12Z-Octadecenoic Acid-d_5, 10-oxo-12-*cis*-Octadecenoic Acid-d_5
MF: $C_{18}H_{27}D_5O_3$
FW: 301.5
Chemical Purity: ≥95% (10-oxo-12(Z)-Octadecenoic Acid)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_5); ≤1% d_0
Supplied as: A 100 µg/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-d_5 is intended for use as an internal standard for the quantification of 10-oxo-12(Z)-octadecenoic acid (Item No. 36977) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

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.

WARRANTY AND LIMITATION OF REMEDY
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