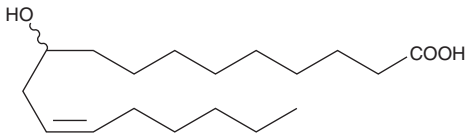
PRODUCT INFORMATION

(±)-10-hydroxy-12(Z)-Octadecenoic Acid

Item No. 37281

CAS Registry No.:	34932-12-2
Formal Name:	10-hydroxy-12Z-octadecenoic acid
Synonyms:	12(Z)-10-HOME, 10-hydroxy-*cis*-12-Octadecenoic Acid
MF:	$C_{18}H_{34}O_3$
FW:	298.5
Purity:	≥98%
Supplied as:	A 1 mg/ml 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.

Description

(±)-10-hydroxy-12(Z)-Octadecenoic acid is a racemic mixture of 10(R)-hydroxy-12(Z)-octadecenoic acid and 10(S)-hydroxy-12(Z)-octadecenoic acid. 10(S)-hydroxy-12(Z)-Octadecenoic acid, also known as HYA™, is a gut microbiome metabolite of linoleic acid (Item Nos. 90150 | 90150.1 | 21909) that is formed by conjugated linoleic acid hydrase (CLA-HY) as an intermediate in CLA biosynthesis.[1,2] 10(S)-hydroxy-12(Z)-Octadecenoic acid (30 µM) inhibits LPS-induced nitric oxide (NO) production, ERK phosphorylation, and increases in inducible NO synthase (iNOS) levels in BV-2 microglia cells.[3] It reduces TNF-α, NO_2, and IL-10 levels in LPS-stimulated and -unstimulated isolated dendritic bone marrow cells when used at a concentration of 100 µM.[4] 10(S)-hydroxy-12(Z)-Octadecenoic acid (100 µM) decreases LPS-induced maturation of the dendritic cell population within isolated mouse bone marrow cells. It induces calcium mobilization in HEK293 cells expressing the human free fatty acid receptor GPR40 or GPR120 (EC_{50}s = 7.51 and 8.1 µM, respectively).[5] *In vivo*, 10(S)-hydroxy-12(Z)-octadecenoic acid (1 g/kg) increases GLP-1 release and reduces body weight in a mouse model of high-fat diet-induced obesity.

References

1. Takeuchi, M., Kishino, S., Hirata, A., *et al.* Characterization of the linoleic acid Δ9 hydratase catalyzing the first step of polyunsaturated fatty acid saturation metabolism in *Lactobacillus plantarum* AKU 1009a. *J. Biosci. Bioeng.* **119(6)**, 636-641 (2015).
2. 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).
3. Ikeguchi, S., Izumi, Y., Kitamura, N., *et al.* Inhibitory effect of the gut microbial linoleic acid metabolites, 10-oxo-*trans*-11-octadecenoic acid and 10-hydroxy-*cis*-12-octadecenoic acid, on BV-2 microglial cell activation. *J. Pharmacol. Sci.* **138(1)**, 9-15 (2018).
4. Bergamo, P., Luongo, D., Miyamoto, J., *et al.* Immunomodulatory activity of a gut microbial metabolite of dietary linoleic acid, 10-hydroxy-cis-12-octadecenoic acid, associated with improved antioxidant/detoxifying defences. *J. Funct. Foods* **11**, 192-202 (2014).
5. Miyamoto, J., Igarashi, M., Watanabe, K., *et al.* Gut microbiota confers host resistance to obesity by metabolizing dietary polyunsaturated fatty acids. *Nat. Commun.* **10(1)**, 4007 (2019).

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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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