

PRODUCT DATA SHEET

2-Hydroxyeicosanoic acid

Catalog number: 1709

Common names: 2-Hydroxy C20:0 fatty acid

Source: synthetic

Solubility: chloroform/methanol, 5:1

CAS number: 16742-48-6

Molecular Formula: C₂₀H₄₀O₃

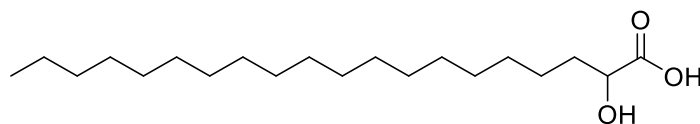
Molecular Weight: 329

Storage: -20°C

Purity: TLC >98%; GC >98%;
identity confirmed by MS

TLC System: hexane/ethyl ether/acetic acid
(70:30:2 by vol.)

Appearance: solid



Application Notes:

2-Hydroxy very long chain fatty acids are abundant in nervous tissues and are components of cerebrosides and sulfatides, which are mostly found in the myelin of nervous tissues. 2-Hydroxyeicosanoic acid has been reported in the marine sponge *Verongula gigantean*.¹ 2-Hydroxy fatty acids are common in cosmetics and skin creams and lotions. They are formed by the oxidation of saturated fatty acids by the enzyme fatty acid 2-hydroxylase. This enzyme is also responsible for the formation of 2-hydroxy galactolipids in the peripheral nervous system.² *alpha*-Oxidation of 2-hydroxy fatty acids to CO₂ and fatty acid occurs in the peroxisome and is unique from the *alpha*-oxidation of *beta*-carbon branched fatty acids such as phytanic acid. Cells from Zellweger syndrome and peroxisome-deficient cells are unable to undergo *alpha*-oxidation although patients with other peroxisomal disorders such as X-linked adrenoleukodystrophy, Refsum disease, and rhizomelic chondrodysplasia punctata are able.³ 2-Hydroxy fatty acids are undergoing much research and various methods of analysis are being investigated.⁴

Selected References:

1. N Carballiera et al. "2-Hydroxy fatty acids from marine sponges 2. The phospholipid fatty acids of the caribbean sponges *Verongula gigantea* and *Aplysina archeri*" *Lipids*, vol. 24 pp. 229-232, 1989
2. E. Maldonado et al. "FA2H is responsible for the formation of 2-hydroxy galactolipids in peripheral nervous system myelin" *Journal of Lipid Research*, Vol. 49 pp. 153-161, 2008
3. R. Sandhir, M. Khan, and I. Singh "Identification of the Pathway of *alpha*-Oxidation of Cerebronic Acid in Peroxisomes" *Lipids*, Vol. 35(10) pp. 1127-1133, 2000
4. N. Alderson, M. Walla, and H. Hama "A novel method for the measurement of in vitro fatty acid 2-hydroxylase activity by gas chromatography-mass spectrometry" *Journal of Lipid Research*, Vol. 46 pp. 1569-1579, 2005

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