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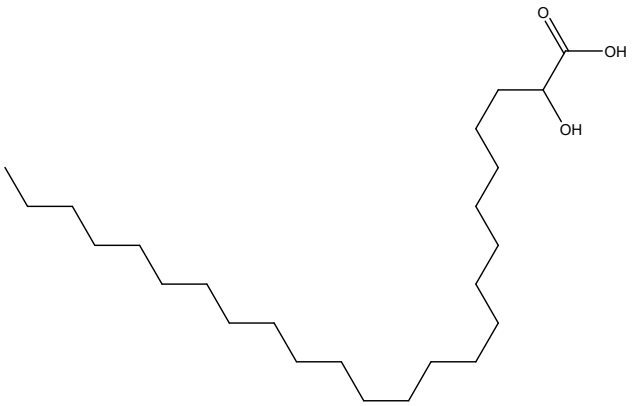
PRODUCT DATA SHEET

2-Hydroxytetracosanoic acid

Catalog No: 1715
Common Name: 2-Hydroxylignoceric acid; 2-Hydroxy C24:0 fatty acid; Cerebronic acid
Source: synthetic
Solubility: chloroform/methanol (5:1 by vol.)
CAS No: 544-57-0

Molecular Formula: $C_{24}H_{48}O_3$
Molecular Weight: 385
Storage: -20°C
Purity: TLC, GC >98%; identity confirmed by MS
TLC System: chloroform/methanol/acetic acid (90:10:3 by vol.)
Appearance: solid



Application Notes:

alpha-Hydroxy very long chain fatty acids are abundant in nervous tissues and are components of cerebrosides and sulfatides, which are mostly found in myelin of nervous tissues. 2-Hydroxytetracosanoic acid, which is unique to nervous tissues, is formed by the oxidation of tetracosanoic acid by the enzyme fatty acid 2-hydroxylase. This enzyme is also responsible for the formation of 2-hydroxy galactolipids in the peripheral nervous system.[1] *alpha*-Oxidation of 2-hydroxytetracosanoic acid to CO_2 and tricosanoic 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 were able to.[2] 2-Hydroxytetracosanoic acid is undergoing much research and various methods of analysis are being investigated.[3]

Selected References:

1. 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*
2. 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*
3. 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*