

## PRODUCT DATA SHEET

### 3-Hydroxyhexadecanoic acid

**Catalog number:** 1739

**Common Name:** 3-Hydroxy C16:0 fatty acid

**Source:** synthetic

**Solubility:** chloroform, ethanol, methanol

**CAS number:** 2398-34-7

**Molecular Formula:** C<sub>16</sub>H<sub>32</sub>O<sub>3</sub>

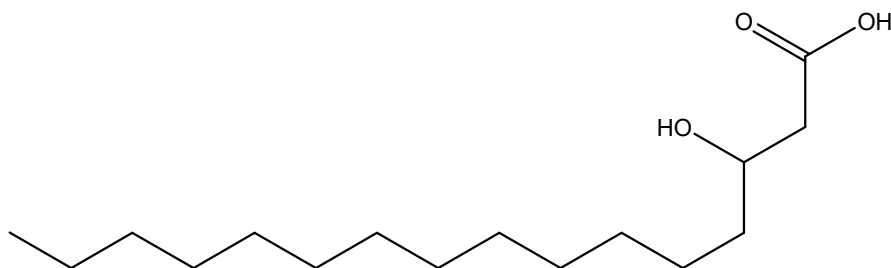
**Molecular Weight:** 272

**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:**

This 3-hydroxyhexadecanoic acid is a high purity standard that is useful for the investigation of disorders and diseases. Polyhydroxyalkenoates, polyesters produced by bacteria fermentation, are used for carbon and energy storage and are of interest in studies regarding their synthesis, properties and mechanisms. Medium chain-length polyhydroxyalkenoate monomers such as 3-hydroxyhexadecanoic acid may have pharmaceutical properties. The biologically natural chiral (R)-3-hydroxyhexadecanoic acid is an intermediate in fatty acid biosynthesis. It has been suggested that the methyl ester of 3-hydroxyhexadecanoic acid is an intercellular signal that autoregulates virulence gene expression<sup>1</sup> and that it modulates production of PhcA-regulated virulence factors in *Ralstonia (Pseudomonas) solanacearum*. 3-Hydroxy fatty acids have been found to be converted to the *omega*-fatty acid by the enzyme CYP4F11 and then into dicarboxylic acids *in vivo*.<sup>2</sup> 3-hydroxy fatty acids are used as biomarkers for fatty acid oxidative disorders of both the long- and short-chain 3-hydroxy-acyl-CoA dehydrogenases.<sup>3,4</sup>

### **Selected References:**

1. A. Flavier et al. "Identification of 3-hydroxypalmitic acid methyl ester as a novel autoregulator controlling virulence in *Ralstonia solanacearum*" *Mol Microbiol*, vol. 26 pp. 251-259, 1997
2. M. Dhar et al. "Omega oxidation of 3-hydroxy fatty acids by the human CYP4F gene subfamily enzyme CYP4F11" *Journal of Lipid Research*, vol. 49, pp. 612-624, 2008
3. P. Jones et al. "Improved Stable Isotope Dilution-Gas Chromatography-Mass Spectrometry Method for Serum or Plasma Free 3-Hydroxy-Fatty Acids and Its Utility for the Study of Disorders of Mitochondrial Fatty Acid *beta*-Oxidation" *Clinical Chemistry*, vol. 46, pp. 149-155, 2000
4. P. Jones et al. "Accumulation of free 3-hydroxy fatty acids in the culture media of fibroblasts from patients deficient in long-chain l-3-hydroxyacyl-CoA dehydrogenase: a useful diagnostic aid" *Clinical Chemistry*, vol. 47(7) pp. 1190-1194, 2001

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