

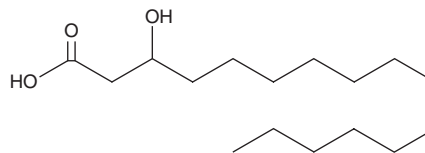
# PRODUCT INFORMATION



## 3-hydroxy Palmitic Acid

Item No. 19934

**CAS Registry No.:** 2398-34-7  
**Formal Name:** 3-hydroxy-hexadecanoic acid  
**Synonyms:** FA 16:0;O,  $\beta$ -hydroxy Hexadecanoic Acid,  $\beta$ -hydroxy Palmitic Acid, DL-3-hydroxy Palmitic Acid  
**MF:**  $C_{16}H_{32}O_3$   
**FW:** 272.4  
**Purity:**  $\geq 95\%$   
**Supplied as:** A crystalline solid  
**Storage:**  $-20^{\circ}\text{C}$   
**Stability:**  $\geq 4$  years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

3-hydroxy Palmitic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-hydroxy palmitic acid in the solvent of choice, which should be purged with an inert gas. 3-hydroxy Palmitic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 3-hydroxy palmitic acid in ethanol is approximately 2.5 mg/ml and approximately 20 mg/ml in DMSO and DMF.

3-hydroxy Palmitic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 3-hydroxy palmitic acid should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 3-hydroxy Palmitic acid has a solubility of approximately 0.33 mg/ml in a 1:2 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

3-hydroxy Palmitic acid is a form of the 16:0 lipid palmitic acid (Item No. 10006627). The lipid A part of lipopolysaccharides contain various 3-hydroxy fatty acids, making oxylipins such as 3-hydroxy palmitic acid useful as chemical markers of endotoxins.<sup>1</sup> In *R. solanacearum*, 3-hydroxy palmitic acid is converted by an S-adenosyl methionine-dependent methyltransferase to 3-hydroxy palmitic acid methyl ester, which acts as a quorum sensing signal molecule for post-transcriptional modulation of genes involved in virulence.<sup>2</sup> Long-chain 3-hydroxy fatty acids, such as 3-hydroxy palmitic acid, are also known to accumulate during long-chain 3-hydroxy-acyl-CoA dehydrogenase and mitochondrial trifunctional protein deficiencies.<sup>3</sup> Such accumulation induces oxidative stress, leading to mitochondrial bioenergetics deregulation and eventual multi-organ dysfunction.<sup>3</sup>

### References

1. Uhlig, S., Negård, M., Heldal, K. K., *et al.* Profiling of 3-hydroxy fatty acids as environmental markers of endotoxin using liquid chromatography coupled to tandem mass spectrometry. *J. Chromatogr. A.* **1434**, 119-236 (2016)
2. Shinohara, M., Nakajima, N., and Uehara, Y. Purification and characterization of a novel esterase ( $\beta$ -hydroxypalmitate methyl ester hydrolase) and prevention of the expression of virulence by *Ralstonia solanacearum*. *J. Appl. Microbiol.* **103(1)**, 152-162 (2007)
3. Tonin, A. M., Amaral, A. U., Busanello, E. N., *et al.* Mitochondrial bioenergetics deregulation caused by long-chain 3-hydroxy fatty acids accumulating in LCHAD and MTP deficiencies in rat brain: A possible role of mPTP opening as a pathomechanism in these disorders? *Biochim Biophys. Acta.* **1842(9)** 1658-1667 (2014)

#### 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.

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