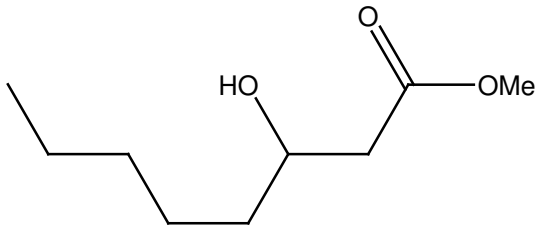
MATREYA LLC
Lipids and Biochemicals
2178 High Tech Road, State College, PA 16803
Tel. 814-355-1030 Fax 814-355-1031 www.matreya.com

PRODUCT DATA SHEET

Methyl 3-hydroxyoctanoate

Catalog number: 1746
Synonyms: 3-Hydroxy C8:0 methyl ester
Source: synthetic
Solubility: chloroform, ethanol, ethyl ether
CAS number: 85549-54-8
Molecular Formula: $C_9H_{18}O_3$

Molecular Weight: 174
Storage: -20˚C
Purity: TLC: >98%, GC: >98%; identity confirmed by MS
TLC System: hexane/ethyl ether (70:30)
Appearance: liquid



Application Notes:

This 3-hydroxyoctanoic acid methyl ester is a high purity standard that is ideal for analysis and biological systems. 3-Hydroxyoctanoic acid is found primarily as polyhydroxyalkenoates in bacteria and other microorganisms where it can be as much as 90% of the dry weight in some circumstances. 3-Hydroxy fatty acids are intermediates in fatty acid biosynthesis and have been found to be converted to the *omega*-fatty acid by the enzyme CYP4F11 and then into dicarboxylic acids *in vivo*.[1] 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.[2,3] 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 and are used as biodegradable plastics.[4] Medium chain-length polyhydroxyalkenoate monomers such as 3-hydroxyoctanoic acid may have pharmaceutical properties. 3-Hydroxyoctanoic acid is a *beta*-oxidation intermediate in humans and it demonstrates anti-lipolytic activity in adipocytes.[5]

Selected References:

1. 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*
2. 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*
3. 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*
4. J. Gangoiti et al. "Production of Chiral (*R*)-3-Hydroxyoctanoic Acid Monomers, Catalyzed by *Pseudomonas fluorescens* GK13 Poly(3-Hydroxyoctanoic Acid) Depolymerase" *Applied and Environmental Microbiology*, vol. 76 pp. 3554-3560, *2010*
5. K. Ahmed et al. "Deorphanization of GPR109B as a Receptor for the *beta*-Oxidation Intermediate 3-OH-octanoic Acid and Its Role in the Regulation of Lipolysis" *J. Biol. Chem*., vol. 284 pp. 21928-21933, *2009*