

# PRODUCT DATA SHEET

## 3-Hydroxydecanoic acid

**Catalog number:** 1727

**Common Name:** 3-Hydroxy C10:0 acid

**Source:** synthetic

**Solubility:** chloroform, ethanol, methanol

**CAS number:** 14292-26-3

**Molecular Formula:** C<sub>10</sub>H<sub>20</sub>O<sub>3</sub>

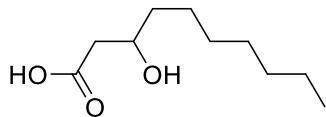
**Molecular Weight:** 188

**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-hydroxydecanoic acid is a high purity standard that is useful for the investigation of disorders and diseases. Polyhydroxyalkenoates, polyesters produced by bacteria fermentation, such as from *Escherichia coli*, are used for carbon and energy storage and are of interest in studies regarding their synthesis, properties and mechanisms.<sup>1</sup> Short chain-length polyhydroxyalkenoate monomers such as 3-hydroxydecanoic acid may have pharmaceutical properties. 3-Hydroxydecanoic acid is the prevalent fatty acid in the rhamnolipid of *Pseudomonas aeruginosa*.<sup>2</sup> The biologically natural chiral (R)-3-hydroxydecanoic acid is an intermediate in fatty acid biosynthesis. 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. Z. Zheng et al. "Production of 3-hydroxydecanoic acid by recombinant *Escherichia coli* HB101 harboring phaG gene" *Antonie Van Leeuwenhoek*, vol. 85 pp. 93-101, 2004
2. Q. Wang et al. "Engineering Bacteria for Production of Rhamnolipid as an Agent for Enhanced Oil Recovery" *Biotechnology and Bioengineering*, vol. 98 pp. 842-853, 2007
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 1-3-hydroxyacyl-CoA dehydrogenase: a useful diagnostic aid" *Clinical Chemistry*, vol. 47(7) pp. 1190-1194, 2001

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DS1727 Rev. #5  
December 22<sup>nd</sup>, 2021