

# PRODUCT DATA SHEET

## 20-Hydroxyeicosanoic acid

**Catalog number:** 1877

**Common Name:** *omega*-Hydroxy C20:0 fatty acid

**Source:** synthetic

**Solubility:** chloroform, warm ethanol

**CAS number:** 62643-46-3

**Molecular Formula:** C<sub>20</sub>H<sub>40</sub>O<sub>3</sub>

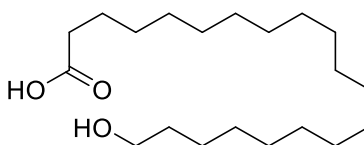
**Molecular Weight:** 328

**Storage:** room temperature

**Purity:** TLC >98%, GC >98%; identity confirmed by MS

**TLC System:** chloroform/methanol/acetic acid (97:3:1 by vol.)

**Appearance:** solid



### Application Notes:

This product is a high purity *omega*-hydroxy very long chain fatty acid that is ideal as a standard and for biological studies. *Omega*-oxidation is a minor fatty acid pathway used for fatty acid metabolism and usually occurs in the smooth endoplasmic reticulum. Eicosanoic acid is enzymatically converted to the 20-hydroxyeicosanoic acid as well as to the eicosadicarboxylic acid as part of the *omega*-oxidation metabolic pathway. Stimulation of *omega*-hydroxylation has been proposed as a method for treating X-linked adrenoleukodystrophy, a disease that is characterized by elevated levels of very long chain fatty acids.<sup>1</sup> *Omega*-hydroxy fatty acids have an important role acylated to various lipids. *Omega*-hydroxylated very long chain fatty acid (VLCFA) ceramides are vital to skin barrier functions and a deficiency of these lipids can cause death from water loss through the skin. A mutation in an elongase enzyme for VLCFA results in a deficiency in *omega*-hydroxylated VLCFA-ceramides which causes a muscular dystrophy disease, defective skin-water permeability barrier function, and neurological disorders showing the importance of these VLCFA ceramides.<sup>2</sup> Sphingolipids (such as sphingomyelin, ceramides, and glucosylceramides) acylated with polyunsaturated and *alpha*- or *omega*-hydroxylated VLCFA have been found in the spermatozoa/testes and in the epidermis. Sphingolipids with VLCFA may be responsible for the maturation of these cell.<sup>3</sup>

### Selected References:

1. R. Sanders et al. "*Omega*-Oxidation of Very Long-Chain Fatty Acids in Human Liver Microsomes: Implications for X-Linked Adrenoleukodystrophy" *Journal of Biological Chemistry*, Vol. 281 pp. 13180-13187, 2006
2. W. Li "Depletion of ceramides with very long chain fatty acids causes defective skin permeability barrier function, and neonatal lethality in ELOVL4 deficient mice" *Int J Biol Sci*, Vol. 3 pp. 120-128, 2007
3. R. Sandhoff "Very long chain sphingolipids: Tissue expression, function and synthesis" *FEBS Letters* Vol. 584(9) pp. 1907-1913, 2010

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.