

## PRODUCT DATA SHEET

### N-(R,S)- $\alpha$ -Hydroxyhexadecanoyl-D-erythro-dihydrosphingosine

**Catalog number:** 2047

**Synonyms:** N-(R,S)- $\alpha$ -Hydroxy-C16:0-D-erythro-dihydroceramide

**Source:** synthetic

**Solubility:** chloroform/methanol/water, 2:1:0.5

**CAS number:** N/A

**Molecular Formula:** C<sub>34</sub>H<sub>69</sub>NO<sub>4</sub>

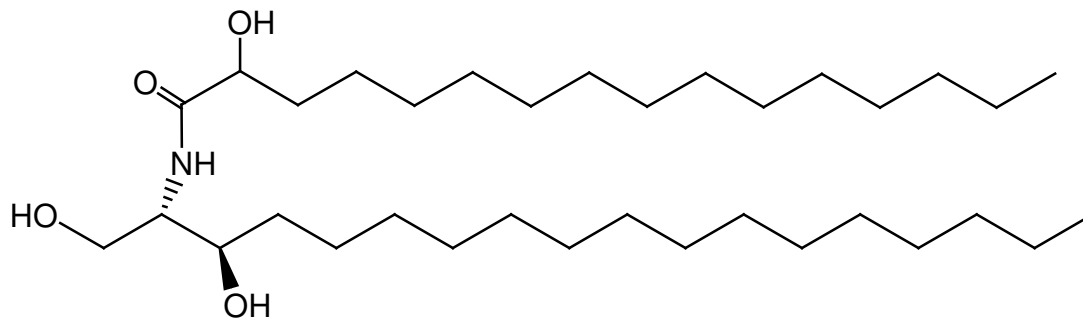
**Molecular Weight:** 556

**Storage:** -20°C

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

**TLC System:** chloroform/methanol (90:10)

**Appearance:** solid



#### **Application Notes:**

This product is a high purity  $\alpha$ -hydroxydihydroceramide and is ideal as a standard and for biological studies. Dihydroceramide is a critical intermediate in the synthesis of many complex sphingoid bases. Inhibition of dihydroceramide synthesis by some fungal toxins that have a similar structure causes an increase in sphinganine and sphinganine-1-phosphate and a decrease in other sphingolipids leading to a number of diseases including oesophageal cancer. Dihydroceramide, synthesized by the acylation of sphinganine, is subsequently converted into ceramide via a desaturase enzyme or into phytosphingosine via the C4-hydroxylase enzyme.<sup>1</sup> The presence of a hydroxyl group on the fatty acyl chain of dihydroceramides significantly affects the function and properties of the molecule. While 2(S)-hydroxydihydroceramides can be converted to non-hydroxydihydroceramides *in vivo* 2(R)-hydroxydihydroceramides cannot. Data presented suggests that 2(R)-hydroxydihydroceramides may interact with some distinct cellular regulatory targets in a specific and more effective manner than their nonhydroxylated analogs.<sup>2</sup> 2-hydroxydihydroceramides have been shown to be incorporated into the galactosylceramides and sulfatides of the myelin where they are essential to neuronal functions.<sup>3</sup>

#### **Selected References:**

1. Y. Mizutani, A. Kihara, and Y. Igarashi "Identification of the human sphingolipid C4-hydroxylase, hDES2, and its up-regulation during keratinocyte differentiation" *FEBS Letters*, vol. 563 pp. 93-97, 2004
2. Z. Szulc et al. "Synthesis, NMR characterization and divergent biological actions of 2-hydroxy-ceramide/dihydroceramide stereoisomers in MCF7 cells" *Bioorg Med Chem*, vol. 18 pp. 7565-7579, 2010
3. M. Kruer et al. "Defective FA2H leads to a novel form of neurodegeneration with brain iron accumulation (NBIA)" *Annals of Neurology*, vol. 68 pp. 611-618, 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.