

# PRODUCT DATA SHEET

## 3-keto-C12-Dihydrosphingosine • HCl

**Catalog number:** 1893

**Synonyms:** 1-Hydroxy-2-amino-3-keto-dodecane•HCl

**Source:** synthetic

**Solubility:** chloroform, methanol, ethanol

**CAS number:** 1823032-02-5

**Molecular Formula:** C<sub>12</sub>H<sub>25</sub>NO<sub>2</sub> • HCl

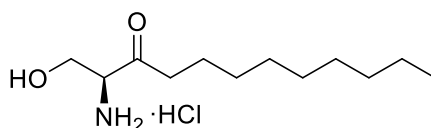
**Molecular Weight:** 215+HCl

**Storage:** -20°C

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

**TLC System:** chloroform/methanol (80:20 by vol.)

**Appearance:** solid



### Application Notes:

3-keto-Dihydrosphingosine is a vital intermediate in the biosynthesis of ceramides.<sup>1,2</sup> This *lyso*-sphingolipid is formed by the condensation of L-serine and palmitoyl-CoA by the serine palmitoyl transferase enzyme.<sup>3</sup> It is then reduced to dihydrosphingosine, converted to ceramide, and eventually synthesized into many types of sphingolipids. C18-keto-dihydrosphingosine is the major sphingolipid precursor in the early and intermediate stages of cell life with C20-keto-dihydrosphingosine as a minor component. Towards the end of the cell's life the ratio of C18 to C20 keto-dihydrosphingosine becomes more equal. It is a critical regulating step in the availability of sphingolipids in cells. Vitamin K deficiency results in the inactivation of the serine palmitoyl transferase enzyme causing a resultant shortage of sphingolipids. Short-chain analogs of 3-keto-dihydrosphingosine have different physical properties from the long-chain 3-keto-dihydrosphingosines. Short-chain bases are considerably less hydrophobic which could significantly change the process of signal transduction.

### Selected References:

1. N. Bartke and Y. Hannun "Bioactive sphingolipids: metabolism and function" *Journal of Lipid Research*, Vol. 50 pp. S91-S96, 2009
2. G. Jenkins and Y. Hannun "Role for *de Novo* Sphingoid Base Biosynthesis in the Heat-induced Transient Cell Cycle Arrest of *Saccharomyces cerevisiae*" *Journal of Biological Chemistry*, Vol. 276 pp. 8574-8581, 2001
3. A. Batheja et al. "Characterization of Serine Palmitoyltransferase in Normal Human Tissues" *Journal of Histochemistry and Cytochemistry*, Vol. 51 pp. 687-696, 2003

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