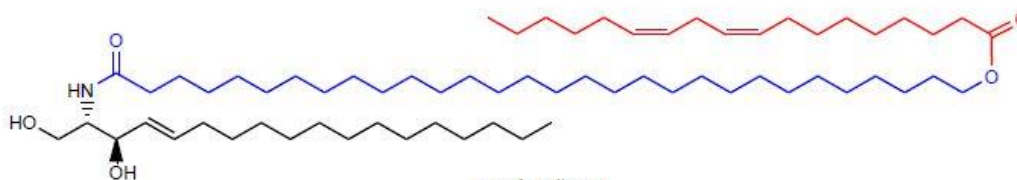


MATREYA NEWSLETTER

FOR GLYCO/SPHINGOLIPID RESEARCH

Vital Ceramides of Human *Stratum Corneum*



Ceramides in human cells have important and divergent functions that make their study both challenging and important. Ceramides have functions that include signal transduction and cellular regulation of apoptosis, cell growth arrest, differentiation, senescence, and immune responses. Many of the functions of ceramides are dependent on the specific structure of each ceramide species. Relative to other tissues, human *stratum corneum* contains a number of very complex ceramide species that play important physiochemical roles in determining cutaneous barrier and water-holding functions.

The *stratum corneum* is the outermost cellular layer of the epidermis and functions as the permeability barrier in mammals. It contains 12 extractable ceramide fractions containing sphingosine, 6-hydroxysphingosine, dihydrosphingosine and phytosphingosine bases. Mammalian skin contains significant amounts of sphingolipids (as much as 50% of the total lipids), particularly very long chain linoleoyl esterified ceramide and glucosylceramide (also called O-acylceramide and O-acylglucosylceramide). These lipids, which are mostly found in the extracellular domains, are vital to the water permeability barrier to prevent lethal loss of water and pathogen invasion. The *omega*-esterified ceramides are formed from glucosylceramide and sphingomyelin in special lamellar bodies in epidermal cells from which they are excreted into the extracellular domain of the outermost cell layer of the epidermis. The *omega*-esterified ceramides can be covalently bound to proteins of the cornified envelope where they form a hydrophobic layer. A deficiency of linoleoyl *omega*-esterified ceramides is strongly correlated with skin diseases such as psoriasis and atopic dermatitis.^(1,2,3)

INSIDE THIS ISSUE

- Ceramides of *Stratum Corneum* 1
- Sphingosine- and Ceramide-1-Phosphate 2
- New Fluorescent Cerebroside 3
- Water Soluble CLA Salt 4

Product Name

N-(30-Linoleoyloxy-triacontanoyl)-sphingosine

Cat.

2084

Amount

1 mg

Purity

98⁺%

References:

1. B. Breiden and K. Sandhoff (2014) *Biochimica et Biophysica Acta* 1841:441-452
2. R. Sandhoff (2010) *FEBS Letters* 584:1907-1913
3. Y. Masukawa et al. (2008) *Journal of Lipid Research* 49(7):1466-1476