

Synergistic effect by combination of different Ceramides

# IACTIVE CERAMIDE

## Ceramides

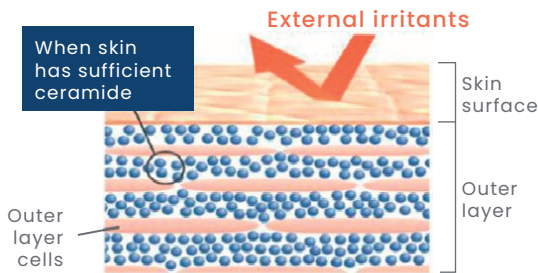
The sphingolipid backbone ceramide is the major lipid species in the stratum corneum and plays a pivotal function in skin permeability barrier formation.



### Skin Barrier

**Prevents** evaporation of water located between each corneous cell.

**Keeps moisture** of skin and protect from external stimulus.



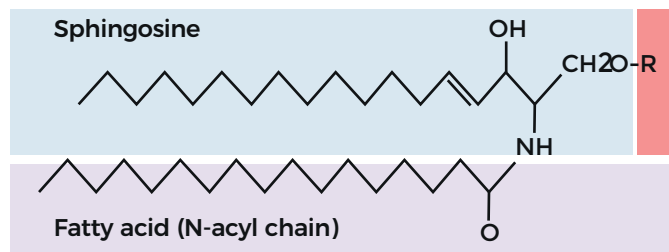
### Powerful Moisturizing Factor

**Important** for maintaining moisture of skin as it is one of the main.

**50%** of Intercellular are ceramides.



### Ceramide structure and types



Substituent (R)	Sphingolipid
H	Ceramides
Phosphocholine	Sphingomyelins
Sugar (s)	Glycosphingolipids
- Single sugar (glucose or galactose)	- Cerebrosides
- Lactose (Disaccharide)	-Lactosylceramides
-Oligosaccharide	-Gangliosides
- Sugar + sulfate	-Sulfatides

Combination of Sphingosine and fatty acid

Sphingoid \ Fatty acid	Non-hydroxy fatty acid [N]	α-Hydroxy fatty acid [A]	Esterified ω-Hydroxy fatty acid [EO]
Dihydrosphingosine [DS]	CER[NDS]	CER[ADS]	Unidentified
Sphingosine [S]	CER[NS]	CER[AS]	CER[EOS]
6-Hydroxy sphingosine [H]	CER[NH]	CER[AH]	CER[EOH]
Phytosphingosine [P]	CER[NP]	CER[AP]	CER[EOP]

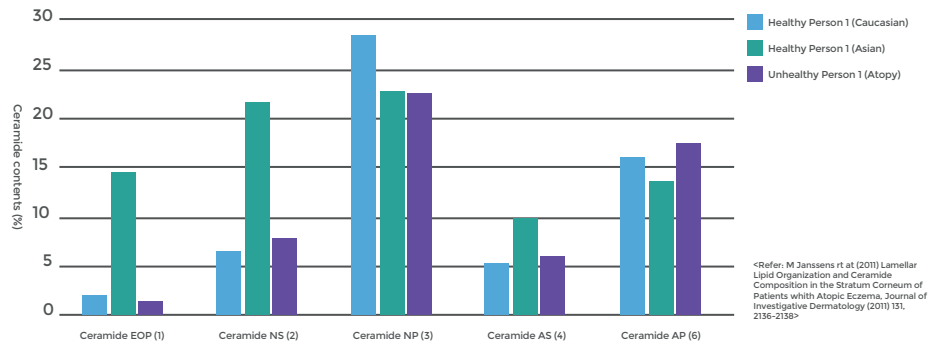
J Ishikawa et al.Changes in the Ceramide Profile of Atopic Dermatitis Patients Journal of Investigative Dermatology (2010) 130, 2511-251



## Ceramide types and functions on the skin

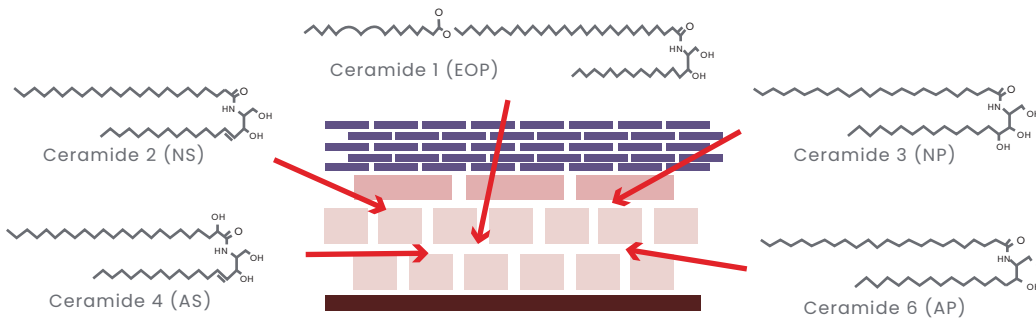
Altered composition of ceramides is regarded as a major cause of skin barrier dysfunction

### Analysis of different kind of Ceramide components in real skin



\*Refer: M.Janssens et al (2011) Lamellar Lipid Organization and Ceramide Composition in the Stratum Corneum of Patients with Atopic Eczema. Journal of Investigative Dermatology (2011) 131, 2136-2138\*

- Mostly, existence of various ceramide structures the skin and gives moisturizing function to skin



<Skin structure diagram and Ceramide>

Our skin contains various kinds of Ceramide.

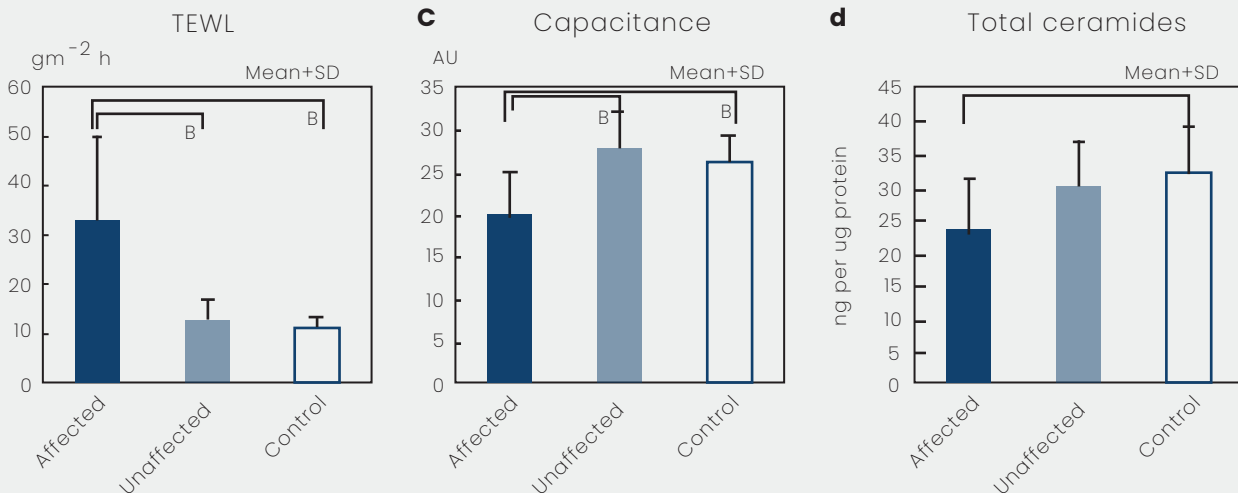
Each Ceramide has different functions and makes cooperative effect.

Gives powerful moisturizing benefit for synergy effect from various Ceramide and increases bio-availability of Ceramide NP by more than 45%.



## Skin Barrier disruption

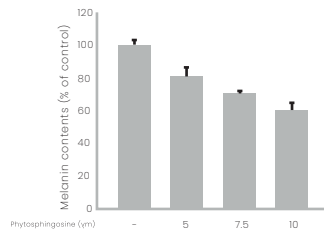
The values of TEWL and pH measured in lesional (or affected) and non-lesional (unaffected) skin in AD patients were significantly higher as compared to healthy skin.



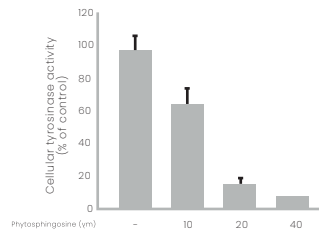


## Pigmentation

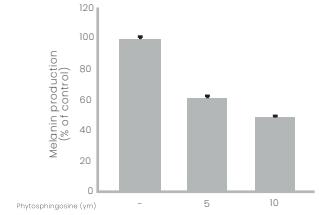
Effect of ceramides on melanin biosynthesis and tyrosinase activities.



Determination of melanin in melan-a cells were treated with the indicated concentrations of phytosphingosine for 72



Effect of phytosphingosine on tyrosinase activity in melan-a cells.



Melanin biosynthesis in a reconstructed UVB-induced human skin model.

E.J. Jang et al. / Anti-melanogenic activity of phytosphingosine via the modulation of the microphthalmia-associated transcription factor signaling pathway *Journal of Dermatological Science* 87 (2017) 19-28



## TECHNICAL DATA

### 1. PRODUCT INFORMATION

Ceramides applied for iActive Ceramide		
INCI Name	Function	Content
Ceramide EOP (Ceramide 1)	- Makes skin barrier. - Prevents oxidation of skin. - Prevents atopy.	Sphingolipids (Ceramides) Total: <b>Min 40%</b>
Ceramide NS (Ceramide 2)	- Increase of skin moisture absorption and maintenance	
Ceramide NP (Ceramide 3)	- Structures phospholipid components and Multilamelar and increases the osmosis moisturizing effect. - Prevents atopy	
Ceramide AS (Ceramide 4)	- Prevents atopy. - Strengthen skin cell membrane.	
Ceramide AP (Ceramide 6)	- Restore and maintain skin barrier. - Vitalize moisture between cells.	
Cholesterol	Important component of skin cell membrane.	

Appearance	Powder
Color	Yellowish
Ceramide content	Min. 40%



### Application

#### Function

Anti-pigmentation, moisturization, skin barrier, sensitive skin, microbioma, anti-aging.

#### Type

Skin toner, serum, gel, Lotion, cream

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