incospharm

Sebodulin

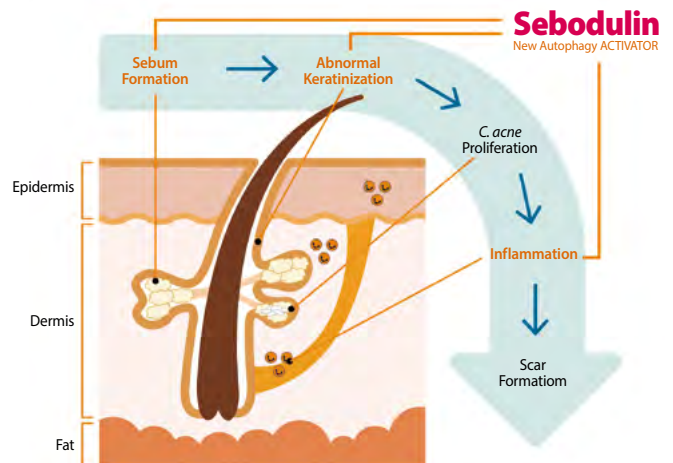## Restoration of healthy hydrolipidic film on skin

The first sebum formation (sebogenesis) modulating ingredient based on autophagy signaling, helping to restore the healthy hydrolipidic film on skin with anti-inflammatory activity against *C. acne*
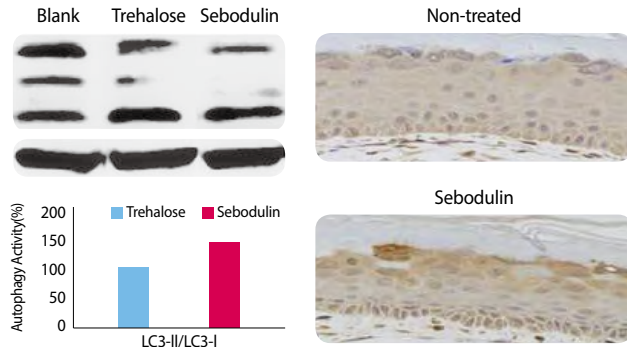
Description

Excessive sebum formation, follicular epithelial barrier dysfunction, and inflammatory responses induced by *Cutibacterium acne* are major triggering and aggravating factors for acne. While conventional anti-acne ingredients addressing sebum formation usually dry up the skin surface, resulting in skin dryness, Sebodulin restores healthy hydrolipidic film by activation of autophagy in sebocytes, the sebum making cells in skin. Sebodulin also help to alleviate the inflammatory responses by *C. acne* and to improve the skin barrier function.
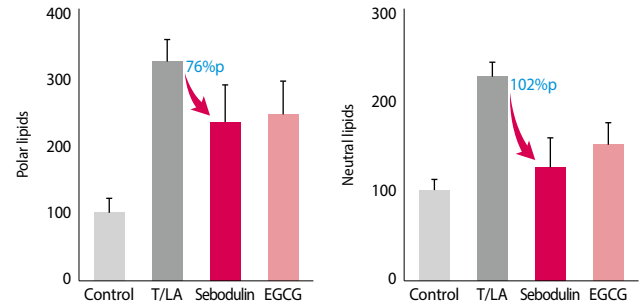

Sebodulin
New Autophagy ACTIVATOR

Sebum Formation → Abnormal Keratinization → C. acne Proliferation → Inflammation → Scar Formatiom

Epidermis
Dermis
Fat

Biological activity

New Autophagy Activator

Blank   Trehalose   Sebodulin

Non-treated

Sebodulin

Autophagy Activity(%)
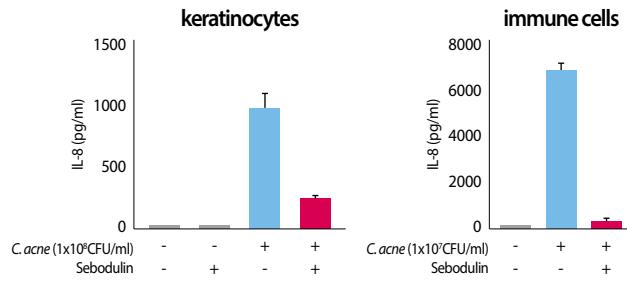- Trehalose
- Sebodulin

200
150
100
50
0

LC3-II/LC3-I

Sebodulin activates the autophagy in cultured immortalized sebo-cytes(left) and reconstituted skin model(right).
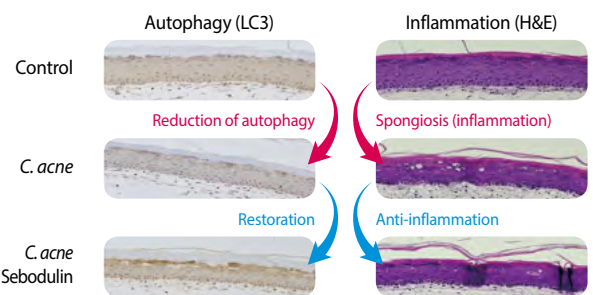
Reduction of Sebum Formation

Polar lipids

400
300
200
100
0

Control   T/LA   Sebodulin   EGCG

76%p

Neutral lipids

300
200
100
0

Control   T/LA   Sebodulin   EGCG

102%p

Sebodulin reduces lipid synthesis in cultured human sebocytes

In vitro Anti-inflammatory Activity

keratinocytes

IL-8 (pg/ml)
1500
1000
500
0

| C. acne (1x10⁸CFU/ml) | - | - | + | + |
| Sebodulin | - | + | - | + |

immune cells

IL-8 (pg/ml)
8000
6000
4000
2000
0

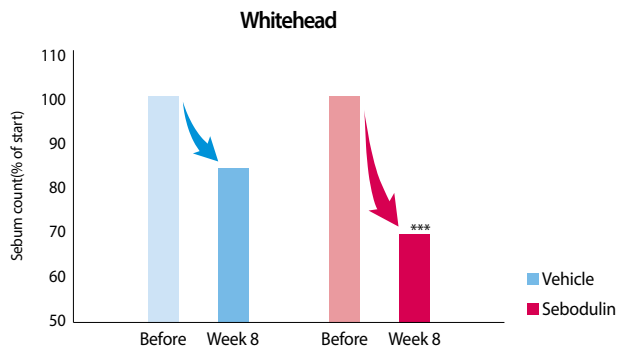| C. acne (1x10⁷CFU/ml) | - | + | + |
| Sebodulin | - | - | + |

Sebodulin inhibits pro-inflammatory cytokine IL-8 secretion in skin kerati-nocytes(left) and immune cells(right) treated with cell free extract of C. acne.

Reduction of Inflammatory Response by C. acne

Autophagy (LC3)   Inflammation (H&E)

Control

C. acne

Reduction of autophagy   Spongiosis (inflammation)

C. acne + Sebodulin

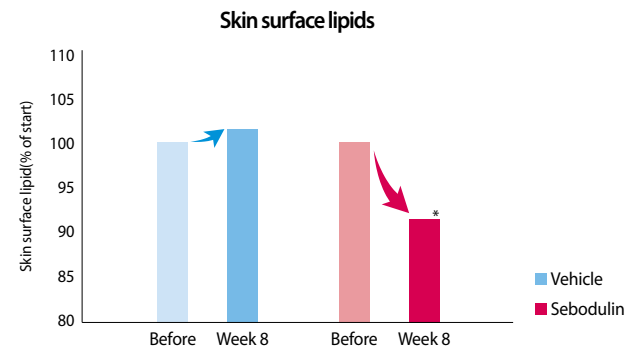Restoration   Anti-inflammation

Sebodulin preventes reduction of autophagy and increase of inflamma-tion caused by topical application of C. acne in reconstituted skin model

Clinical efficacy

Whitehead

Sebum count(% of start)
110
100
90
80
70
60
50

Before   Week 8   Before   Week 8

***

- Vehicle
- Sebodulin

Sebodulin contained product reduces whitehead by 30% than before (by investigator assessment).

Skin surface lipids

Skin surface lipid(% of start)
110
105
100
95
90
85
80

Before   Week 8   Before   Week 8

*

- Vehicle
- Sebodulin

Sebodulin contained product reduces quantity of skin surface lipid (by sebumeter).

PCPC/INCI Name
- Pentasodium Tetracarboxymethyl Heptadecanoyl Dipeptide-12

Composition
- Sebodulin, 1,2-Hexanediol, Water

Application
- Anti-inflammation
- Anti-ACNE
- Anti-greasiness

Recommended Dosage
- 1~2% for cream, lotion and essence
- 0.01~0.1% for masksheet