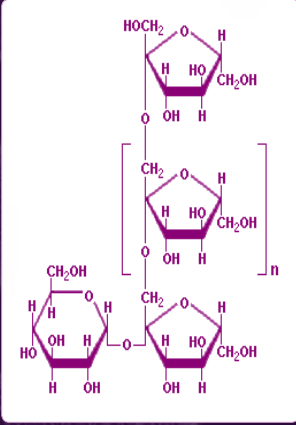


How inulin prebiotics work in strengthening and rebalancing the microbiota



Inulin prebiotics and mode of action

Inulin extracted from chicory and agave characterized by $\beta(2,1)$ bounds. Only organisms with inulinase enzyme can metabolize inulin. Inulin feeds several beneficial micro organisms. Through the food web, microbiota as a whole is supported.

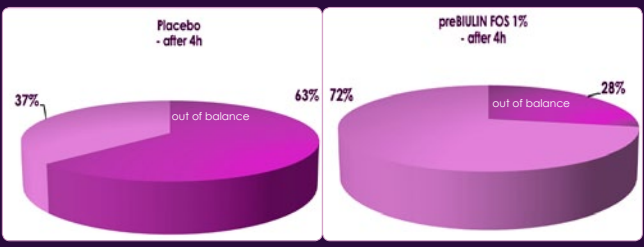
In-vivo test using preBIULIN® FOS

Disturbing microbiota by ethanol.

One hand: ethanol 40%
Other hand: ethanol 40% + 1% preBIULIN® FOS



Microbiota analysis by DNA sequencing
Percentage of microbiota out of balance.



preBIULIN® FOS helps to restore microbiota balance in 4h. preBIULIN® FOS helps the skin to recover faster.

Product overview

preBIULIN® FOS

Quicker recovery to a healthy skin microbiota.
Natural conditioning for hair and skin without compromising performance.
Enhances the efficacy of disinfectants.

preBIULIN® AGA

Counteracts the damages of preservatives on the skin.
Skin hydration that outperforms Hyaluronic Acid.
Supports the skin microbiota to reduce effects of aging.

BIOLIN/P

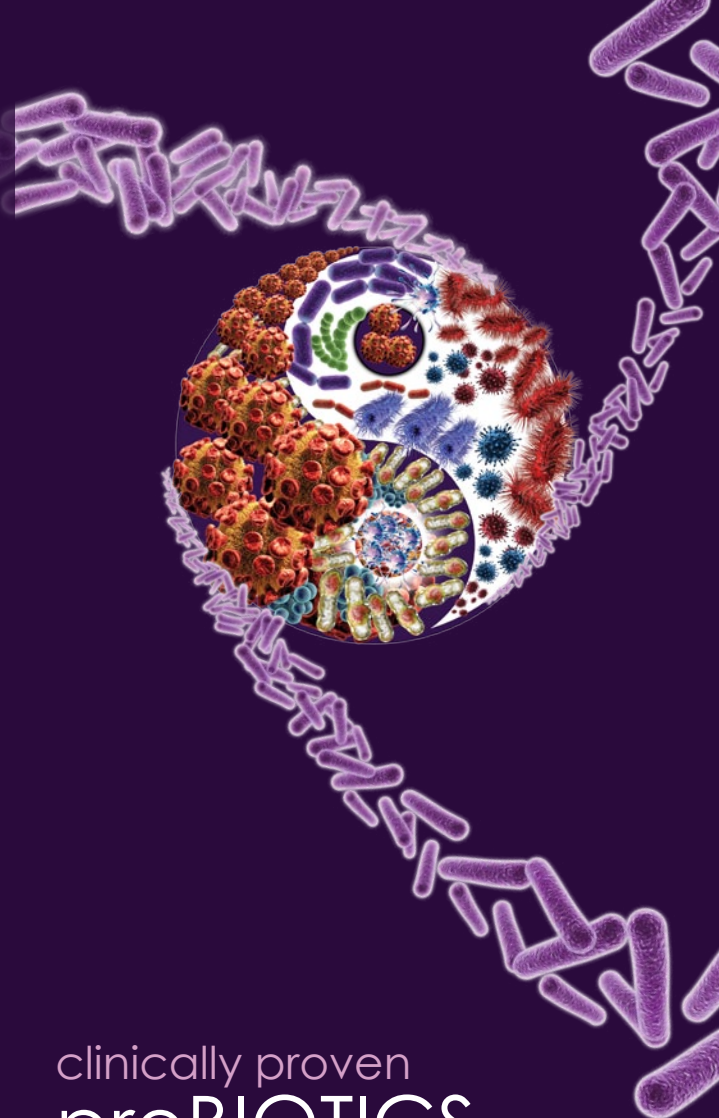
Clinically proven to prevent reoccurrence of severe skin conditions.
Effective in keeping the most sensitive skin healthy.
Reinforces the protective skin microbiota.

preBIULIN® OP

Supports the growth of Lactobacilli.
Blocks the invasion of Fungi.
Turns transparent formulas white.

preBIULIN® C90

Natural thickener with prebiotic properties .
Capable of forming clear gels.



clinically proven
preBIOTICS
supporting the
skin's microbiota



GOBIOTICS BV
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Claims and benefits

Product description

Natural inulin-based prebiotics.
Derived from chicory and agave.

Mode of action

Nourishes the skin microbiota.
Helps the skin microbiota to recover faster, through selective support to beneficial microorganisms.

Efficacy and performance

Helps protect the skin's natural barrier.
Keeps skin hydrated.
Reduces the effect of aging on the skin microbiota.

Formulation

Reduces the impact of harsh ingredients on the skin resulting in milder formulations.

Ancillary benefits

Conditions skin and hair.

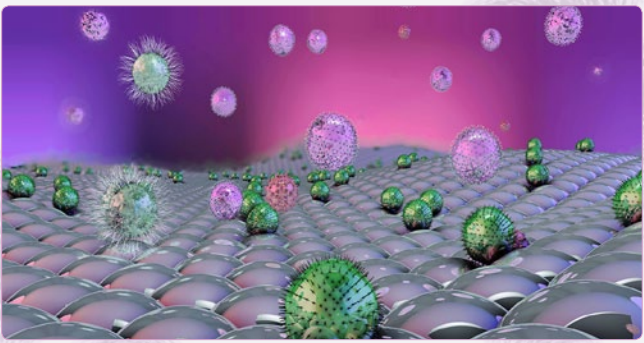
Microbiota, microbiome and healthy skin

Microbiota & microbiome

Microbiota: collection of micro-organisms on the skin.
Microbiome: the DNA of the microbiota.

Microbiota and healthy skin

The skin microbiota forms a protective layer on top of the Stratum Corneum. Protects the skin against invasion of foreign species, maintains community balance and cleans the skin. Forms a moisturizing Biofilm that retains moisture.



Three elements of the skin microbiota balance

A. Skin nourishes the microbiota

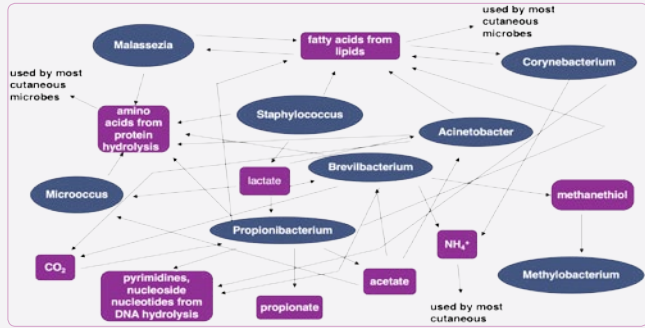
Dead skin cells, fatty acids, lipids, sebum....

B. Microorganisms provide benefits and protection

Acids, antimicrobial peptides, ...
Communicate with the skin immune cells.

C. Microorganisms support each other

Beneficial micro organisms produce food for the other beneficial microorganisms.
Food webs: stabilizing communities.



Disrupting the skin microbiota

Disruptions can have many causes, such as disinfectants, preservatives: change in population
Change in food: some species may become dominant.

Aggressive products: disappearance of food.
Age: fewer skin cells, less sebum, less healthy food for the microorganisms.

Disruptions and skin problems

Disruptions can lead to skin problems.
Skin problems are sustained due to due to unwanted microorganisms.

Problem	Cause
Acne	P. acnes, S. epidermidis
Atopic dermatitis	S. Aureus
Rosacea	B. oleronius, S. epidermidis
Dandruff	Malassezia species
Psoriasis	Skin: Candida, S. Aureus Scalp: Malassezia
Diaper rash	C. albicans
Beard	Tinea, S. Aureus, Candida
Inflammation	Multiple
Premature aging	Multiple

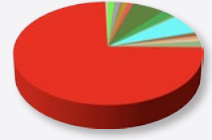
Different stages of the skin microbiota



A healthy microbiota
A microbiota composition with multiple different species, each present in a specific abundance, that is in balance.



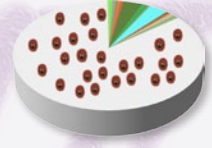
Dominance of a species
A particular organism becomes more dominant at the expense of others. The microbiota is self-regulating and will go back to its balanced state.



Infection
The dominant organism continues to grow and the remaining colonies are severely weakened.



Disinfection
The only remedy is to apply a disinfection step. The dominant organism is removed, while the remaining micro organisms are further weakened.



Susceptible to foreign species
The disinfection made room for foreign species to colonize and the remaining microbiota too weak to prevent it.

The remaining microbiota is too weak. The inulin prebiotic can support them, to recolonize the skin surface and to prevent the invasion of foreign species.

