

**Microbiotic Skin Treatment**  
HighTech Microbiome Regeneration



## Our Competences: We Develop Microbiome Products

We develop products with **innovative microbiotic concepts** that efficiently protect against diseases and alleviate the suffering of sick people.

SwissMicrobiome® medical takes up the scientific findings from microbiome research and uses these results to develop products.

The selection of “**good**” **bacteria** results in microbiotic products that provide effective protection against diseases and with which diseases may be cured in the future.

Microbiotic products ensure a **healthy balance of microbiomes**:

- Developed from probiotic sources
- Effect proven
- Manufactured industrially



### **SwissMicrobiome® House Formulation** for the regeneration of the skin microbiome

Used in innovative cosmetics  
for sustainably healthy skin and against disordered skin

Used in medical skin care

- Atopic Dermatitis
- Psoriasis
- Acne
- Rosacea

# The Key: The Skin Microbiome in Balance

## Healthy skin with intact microbiome



Species

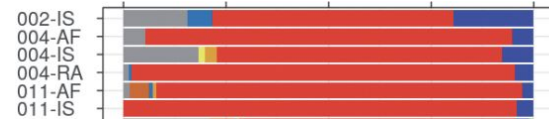
- P. acnes*
- S. epidermidis*
- S. aureus*
- C. pseudogenitalium*
- L. clevelandensis*
- S. hominis*
- S. infantis*
- F. magna*
- M. osloensis*
- M. luteus*
- others



A healthy skin microbiome is characterized by a multitude of commensal bacteria.

It protects the skin, helps with skin problems and strengthens the skin's immune system

## Sick skin with disturbed microbiome



In case of a disturbed skin microbiome, inflammatory germs like *S. aureus* take over

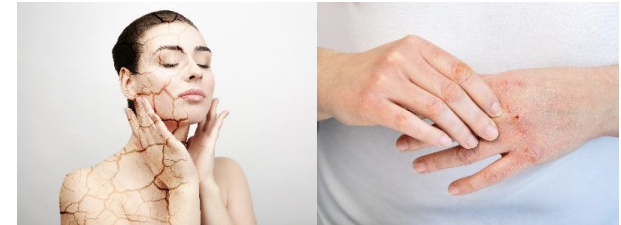
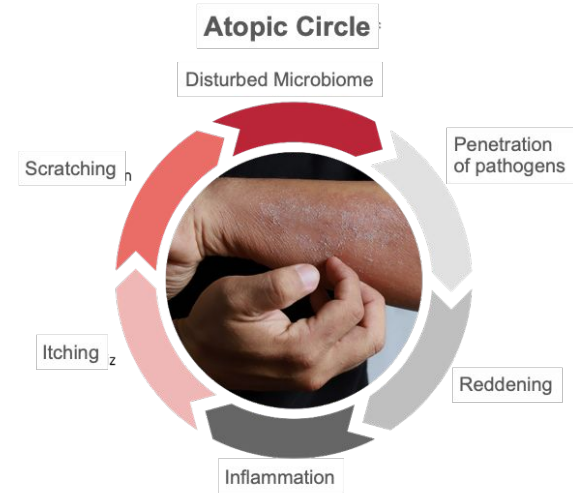
# A Damaged Skin Microbiome promotes Skin Problems and Diseases

## What causes a disturbed skin microbiome?

- Environmental pollution
- Stress
- Excessive washing
- Autoimmune diseases
- Unhealthy diet
- Genetic disposition

## What are the resulting problems?

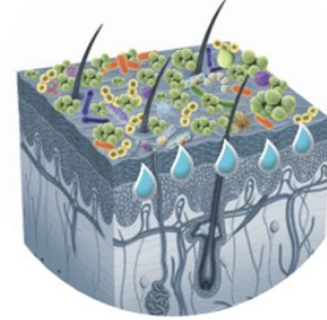
- Skin barrier and immune system are weakened
- pH-value turns alkaline
- Pathogenic germs can penetrate the skin barrier and cause inflammation
- Dry, scabby, itching and inflamed skin
- Promotes premature skin aging



## The Key Players: *S. epidermidis* and *S. aureus*

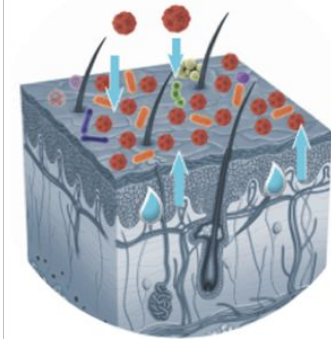
### ***Staphylococcus epidermidis*** (and other commensal bacteria)

- Has the highest population density in the healthy skin microbiome
- Regulates pH value and skin moisture processes with other commensal bacteria
- Kills *S. aureus* through biochemical processes using antimicrobial peptides
- Strengthens the immune system
- Obviously has an important part in wound healing



### ***Staphylococcus aureus***

- Is the inflammation germ
- Has an extremely high population density in microbiomes in disbalance
- Is often a problem in wound care (MRSA) as a multi-resistant germ



## SwissMicrobiome® House Formulation

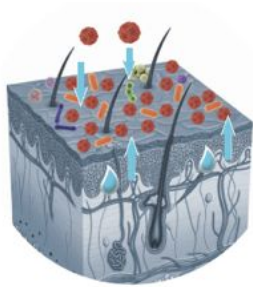
**SwissMicrobiome® has developed a unique and innovative bioactive ingredient, which specifically promotes the growth of beneficial bacteria**

- Specifically stimulates the growth of *S. epidermidis* and other commensals
- Helps to keep inflammatory germs like *S. aureus* in check
- Restores and stabilizes the microbiome
- Skin barrier and immune system are strengthened

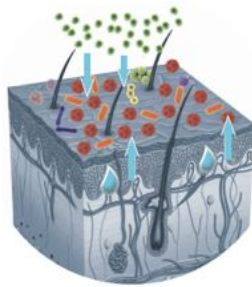
**SwissMicrobiome® House Formulation is developed from lactic acid bacteria *Lactobacillus brevis***

- Patent protected
- Efficacy proven in clinical studies and user tests

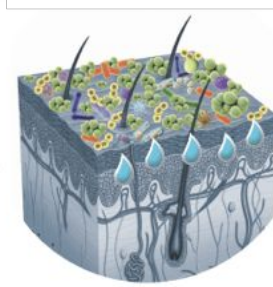
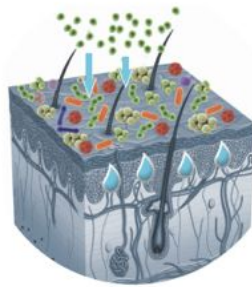
# Paradigm Shifting Strategy for Regenerating the Skin Microbiome



Microbiome  
in Dysbalance

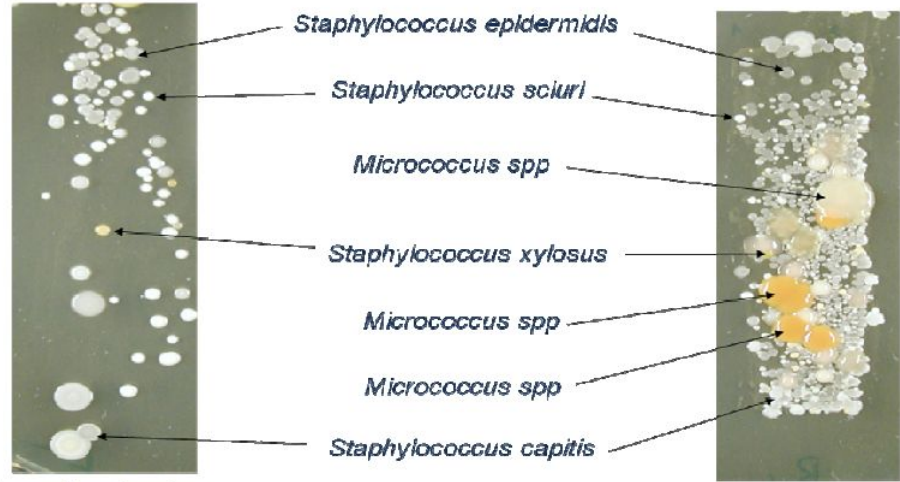
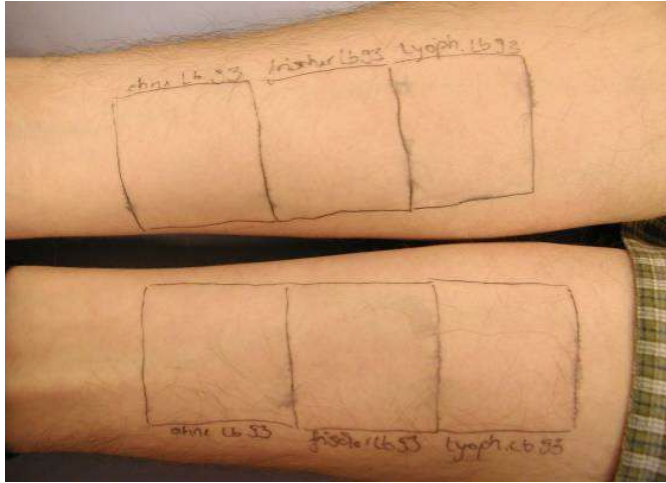


Treatment with SwissMicrobiome®



Microbiome in Balance

### in-vivo Bioassay



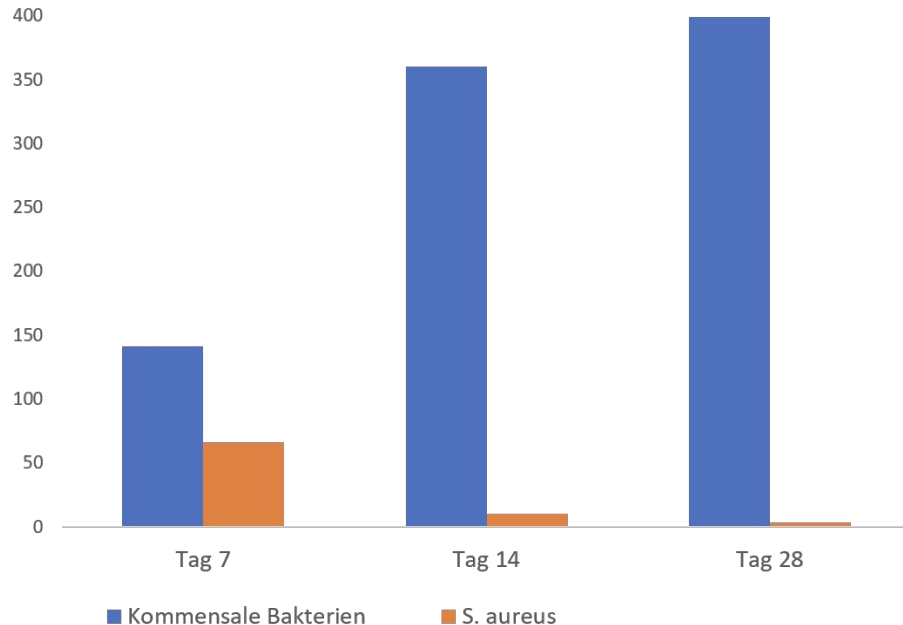
- 4 hours washing the forearm the regular soap
- 1 forearm without treatment, 1 forearm with active ingredient

### Result:

Clear and significant growth of various commensal skin bacteria

**SwissMicrobiome® House Formulation specifically promotes the growth of commensal skin bacteria.**

*Pathogenic germs are not promoted.*

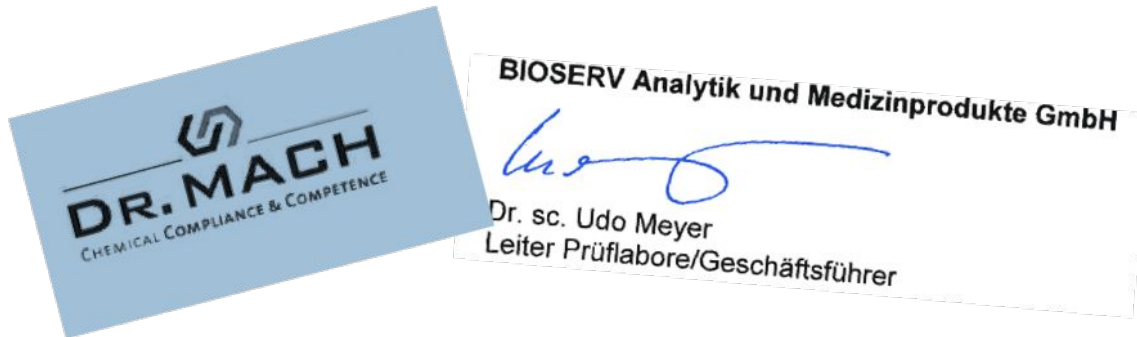


## **Lactobacillus brevis safety rating by BIOSERV :**

- No biological danger for human beings and animals
- Species classified as GRAS (Generally Recognized As Safe)

## **Safety assessment stimulans (LBSE-PPG) by Dr. Mach:**

- All components are considered safe  
(according to EC Regulation 1223/2009)



## Designed to protect and promote the microbiome of the skin

- Regenerates the natural skin barrier
- Prevents skin problems
- Provides lasting moisture
- Slows premature skin aging
- Soothes sensitive skin
- Strengthens the immune system of the skin
- Without parabens, silicones and allergens
- Proven in user tests



## Designed to regenerate and stabilize a dysbalanced skin microbiome

- Acute help for symptoms of
  - a. Atopic dermatitis,
  - b. Psoriasis,
  - c. Acne
  - d. Rosacea
- Regeneration of the skin microbiome
- Relieves itching and burning
- Helps to break the cycle "itching - scratching - inflammation"
- Reduces symptoms of inflammation
- Stabilizes the moisture balance
- For adults and children
- Proven in user tests

## SwissMicrobiome® Skin Serum



Microbiotic serum for sensitive skin areas and for skin irritation. Regenerates the natural skin protection barrier particularly quickly.

A high proportion of hyaluronic acid makes the skin appear smooth and wrinkle-free. Delays skin aging.

## SwissMicrobiome® Rich Lotion



SOS cream for quick relief of itching and burning skin. Helps to break the cycle “itching – scratching – inflammation”. Promotes the rapid formation of the protective skin barrier.

## SwissMicrobiome® Skin Emulsion

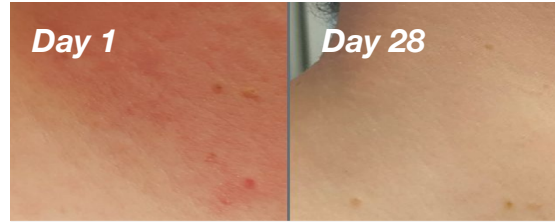


Soothes irritated and dry skin. For the lasting and preventive promotion of a healthy skin flora for all skin areas.

## SwissMicrobiome® products for healthy radiant skin



Results in atopic dermatitis using  
**SwissMicrobiome®**  
Skin Serum



Results in contact dermatitis using  
**SwissMicrobiome®**  
Skin Serum



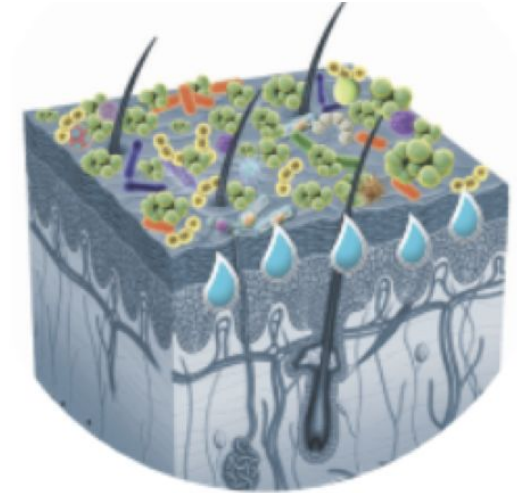
Results in spots using  
**SwissMicrobiome®**  
Skin Emulsion & Rich Lotion



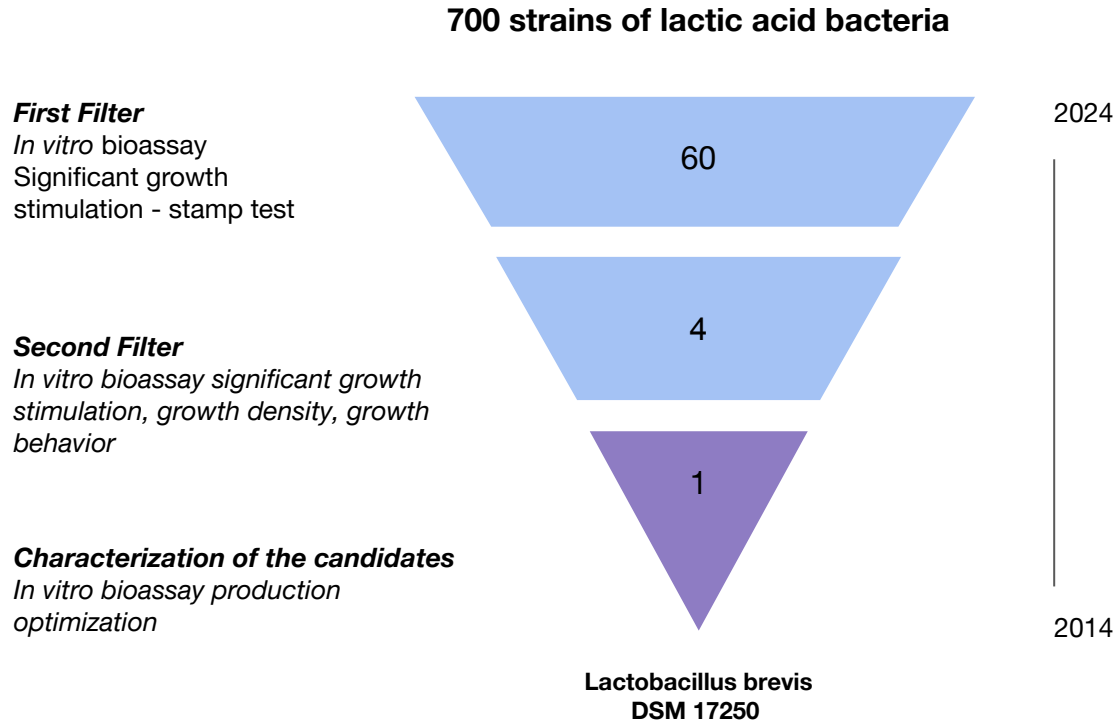
Results in acne using  
**SwissMicrobiome®**  
Skin Emulsion

# The Basis: Scientific Knowledge of the Skin Microbiome

- The metabolic products produced by commensal skin flora have a positive effect on skin tissue, the immune system and skin quality
- The commensal bacteria of the skin flora regulate the immune system and influence the skin resistance
- In the state of the microbiome dysbalance resistance of the skin is disturbed. The consequences are:
  - The skin becomes dry and scarpy
  - The pH value of the skin moves to a basic milieu
  - Pathogenic germs penetrate through the unprotected skin barrier and cause inflammation
  - The skin's immune system is weakened
- The most important pathogen of diseased skin is *Staphylococcus aureus*. In healthy skin, *S. aureus* is only slightly present in the microbiome. If the skin is diseased, its proportion can rise to over 90%.
- Commensals such as *Staphylococcus epidermidis* and *Staphylococcus hominis* release antimicrobial peptides that specifically kill *S. aureus*.



# Development of active ingredient for SwissMicrobiome® Products

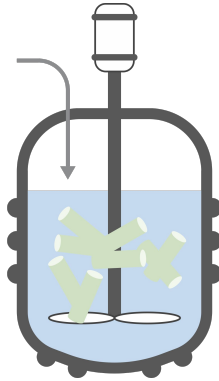


# Production from Probiotics to Microbiotics

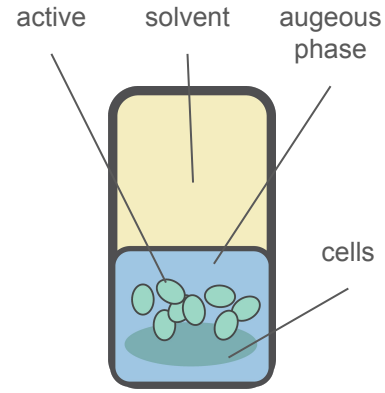
**Starter:**  
Probiotic lactobacillus



Production stocks  
*Lactobacillus brevis*

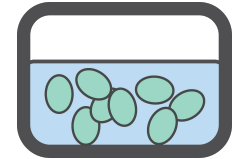


Fermentation



Extraction/  
Permeabilization

**Result:**  
Microbiotic active ingredient  
SwissMicrobiome®

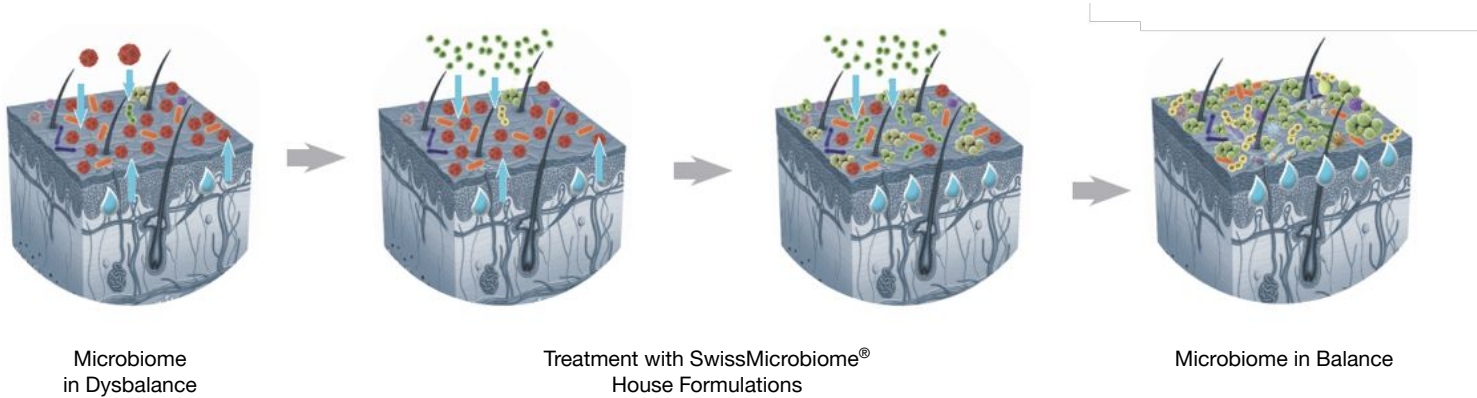


Cell-free  
aqueous extract

PROBIOTIC

MICROBIOTIC

## The Result: Scientific Evidence and Optimized Effect

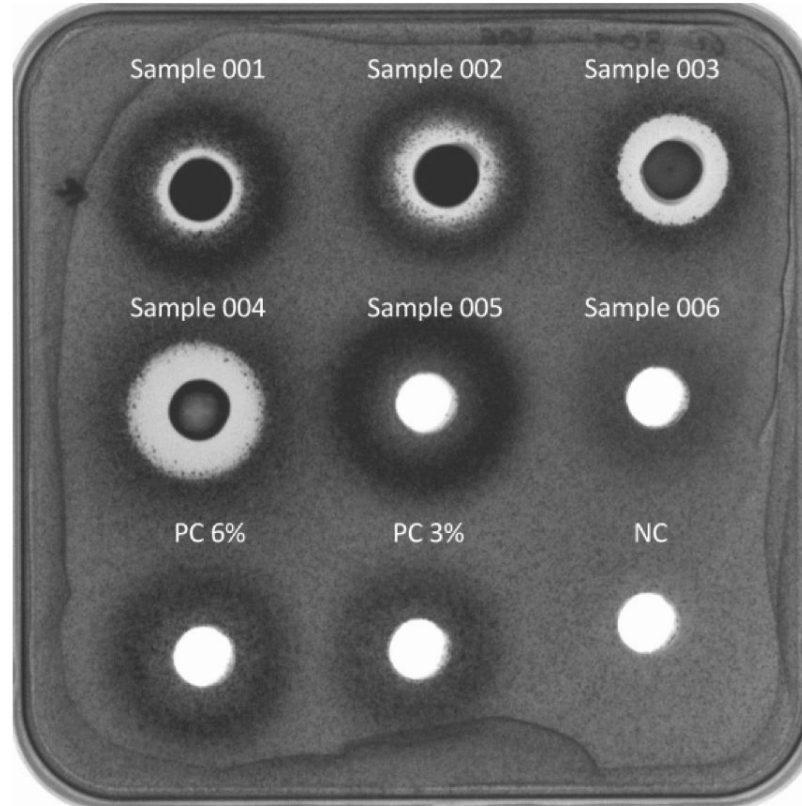


### SwissMicrobiome® House Formulations

- = active ingredient
- = concentrate out of *Lactobacillus brevis* DSM 17250
- = cell free fluid
- = best suited to merge in dermalogical formulations
- = is unique

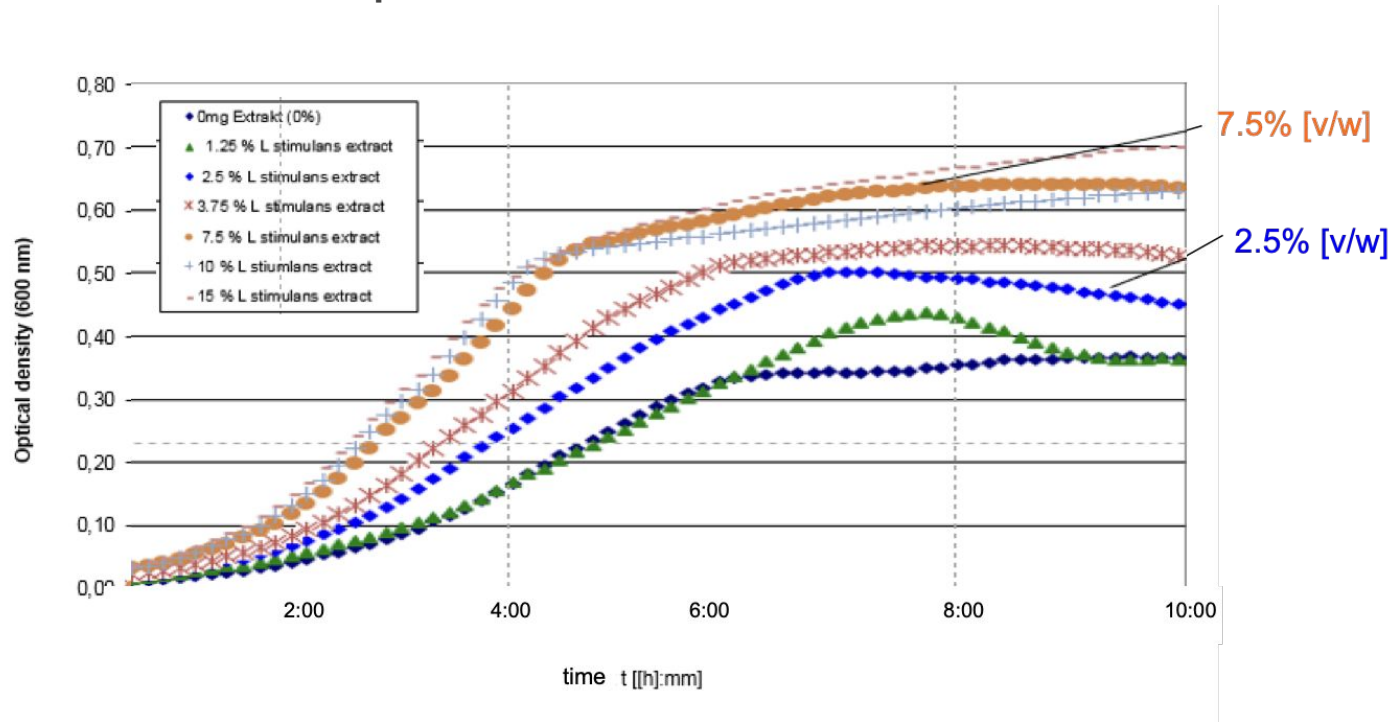
- = scientifically proven effects and mode of action
- = stimulates the augmentation of *S. epidermidis* and the commensal bacteria selectively
- = does not stimulate pathogens like *S. aureus*
- = is sustainable and in the shortest possible time

The active ingredient and the manufacturing process are patented.



Agar-Platte  
mit *S. epidermidis*

## in-vitro growth stimulation of *S. epidermidis*



## In-vivo study:

Symptoms: xeroderma / verum with SwissMicrobiome® House Formulation

Placebo controlled, randomized, double blind, 30 subjects, treatment duration 4 weeks

### PATIENTENBEWERTUNG

|                      |                  |
|----------------------|------------------|
| Trockene Haut        | 73% Verringerung |
| Spannungsgefühl      | 73% Verringerung |
| Juckreiz             | 74% Verringerung |
| Brennen              | 62% Verringerung |
| Allgemeiner Eindruck | 43% Verbesserung |
| Verträglichkeit      | 100%             |

### Findings:

All symptoms of inflammatory skin diseases are reduced:

|              |      |
|--------------|------|
| Dry Skin     | 73%  |
| Tension      | 73%  |
| Itching      | 74%  |
| Burning      | 62%  |
| Tolerability | 100% |

### DASI (Dyshidrotic Eczema Area and Severity Index)



### Findings:

- Fast and efficient improvement of DASI
- High tolerability
- Dermatologically tested with persons having high sensitive skin

### Hautgefühl Brennen (arbitrary units from score)



### Findings:

- Significantly reduced „Burning“

# Clinical Study Results - in vivo + in vitro

Testperson mit verbessertem TEWL  
(Trans-Epidermal Water Loss nach drei Wochen) [%]



## Findings:

- Significantly improved skin moisture level
- Skin barrier more stable

Quantification of commensal skin bacteria and  
Staphylococcus aureus by tape stripping and plating

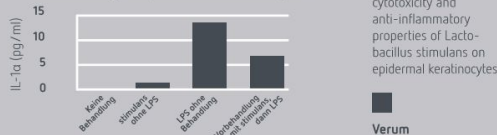


Data from one test person among the verum group on day 7 and day 28 after treatment

## Findings:

- Significant improvement of commensal skin flora
- Reduction of colony-forming bacteria S. aureus
- Commensal bacteria
- S. aureus

Cytotoxizität & Anti-Inflammatorische  
Untersuchung an epidermalen Keratinocyten



In-vitro-Studie: Evaluation of the cytotoxicity and anti-inflammatory properties of Lactobacillus stimulans on epidermal keratinocytes

## Findings:

- Preventive skin care by stimulans leads to a prevention of skin inflammation
- Continuous treatment with stimulans delivers a protective anti-inflammatory effect

## Study Objectives:

- Check the effectiveness of the SwissMicrobiome products for atopic dermatitis, psoriasis, acne and rosacea
- Satisfaction of test persons regarding the use and the effects of SwissMicrobiome products
- Investigate the sustainable effects of SwissMicrobiome® products

## Execution:

### Phase 1:

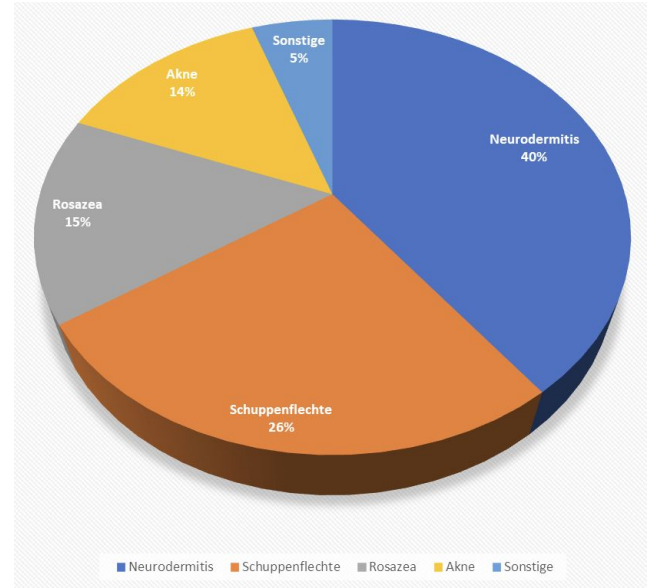
- 250 subjects of all ages
- Disease-specific instructions for use
- Use over 4 weeks
- 145 responses (60%) with standardized questionnaire
- Evaluation: 60 atopic dermatitis - 40 psoriasis - 25 acne - 20 rosacea

### Phase 2:

- 6 months long-term user test
- Completed in February 2020

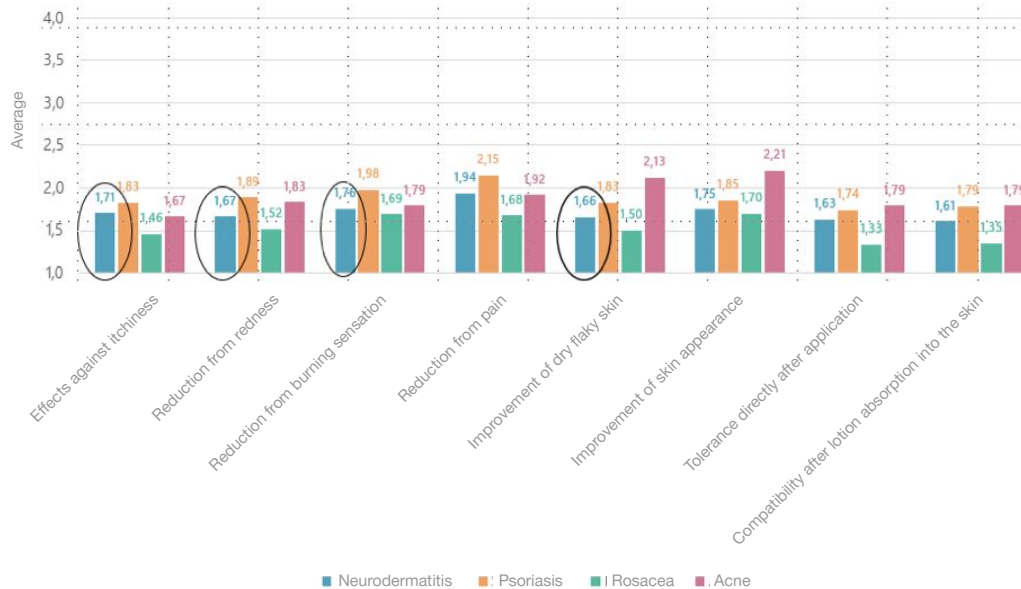
## Results:

- Fast and continuous effect
- Good tolerance of the products
- Higher rated compared to competing products
- 91.5% of the test persons will recommend the products
- 88.0% of the subjects will continue to use the products



# Effect of SwissMicrobiome® in Case of Atopic Dermatitis

- Acts fast and sustainable against itching and burning
- Redness and inflammation are significantly reduced
- Dry and scarpy skin develops to normal healthy state



"My son has only mild neurodermatitis, the intensive cream has been enough for him that the neurodermatitis has withdrawn. The cream is easy, simple and economical to apply. Smells pleasant and is well tolerated. "

"Great care that actually helps quickly with itchy, irritated skin!"

"I have suffered from neurodermatitis for 50 years and have tried many products. I also had an allergic reaction to several of them. I tolerated the SwissMicrobiome® products very well ... I am very satisfied with the products and will continue to use them in the future.

Result for SwissMicrobiome® Rich Lotion / answer scale 1 = very good 4 = no effect

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