

Innovative Products for Microbiome Management

Investors Presentation
2023



The Microbiotics Company

It is my vision and strong belief that understanding the interaction and communication of microorganisms paves the sustainable and natural route for treating diseases and improving quality of life.

The basis of the BELANO Microbiome Products is 20 years of outstanding scientific research in Microbiology.

Our findings led to exceptional pioneering postbiotic microbiome products.

Our ingredients and final products manage and repair microbiome imbalances addressing today's unmet medical needs.



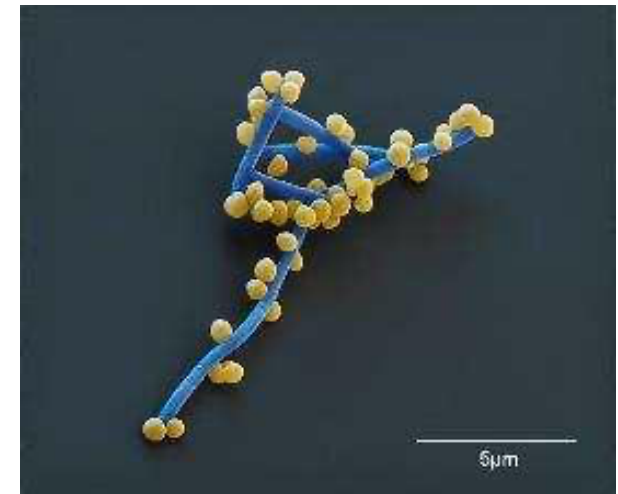
*Christine Lang, PhD
Inventor and Founder
Professor at Technical University Berlin, Germany*



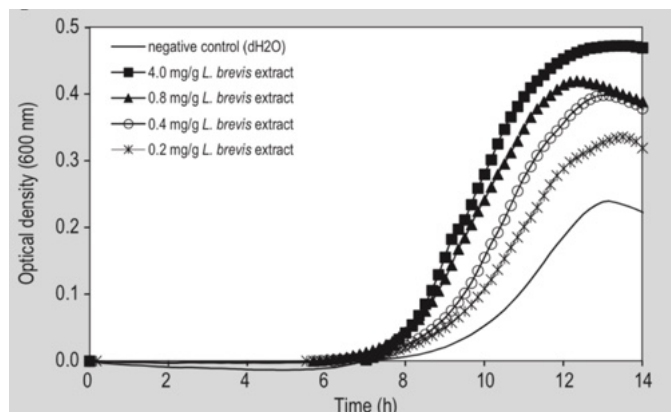
BELANO
medical

The Microbiotics Company

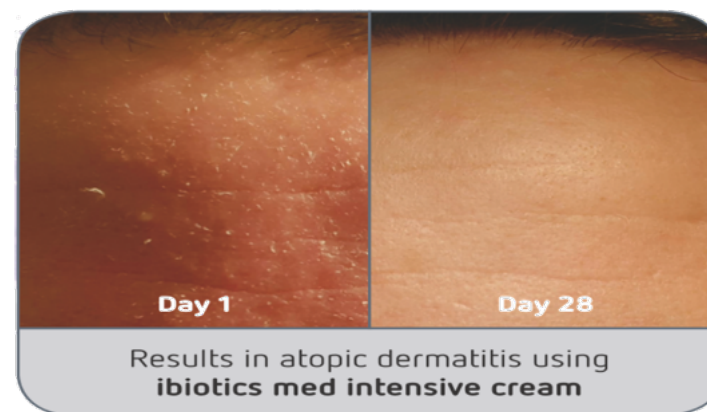
- Founded by scientific leaders
- Probiotics-based research and clinically proven bioactive postbiotics
- Cosmetic products for skin microbiome repair in skin diseases
- Medical device products for antibiotic-free pathogen management
- Strong development pipeline
- Broad patent protection



Lactobacillus crispatus binding *Staph. aureus*

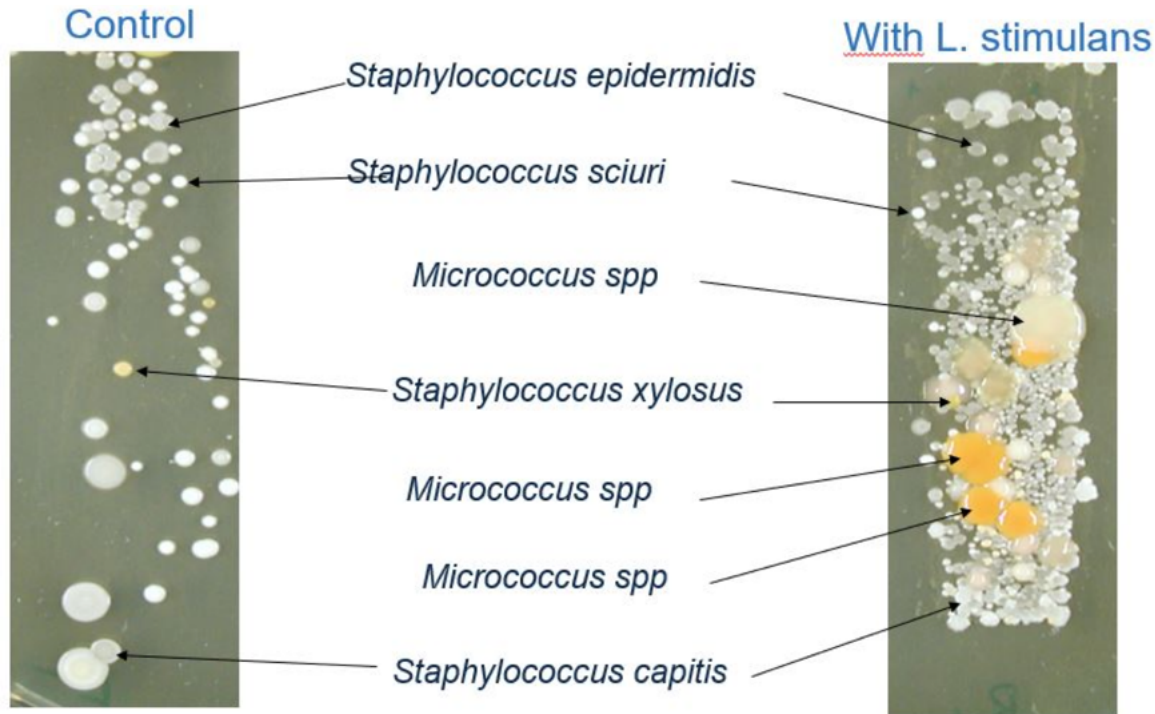


Lactobacillus brevis metabolites restore skin guardian *Staphylococcus epidermidis*.



Results in atopic dermatitis using
ibiotics med intensive cream

stimulans® significantly improves microbiota density



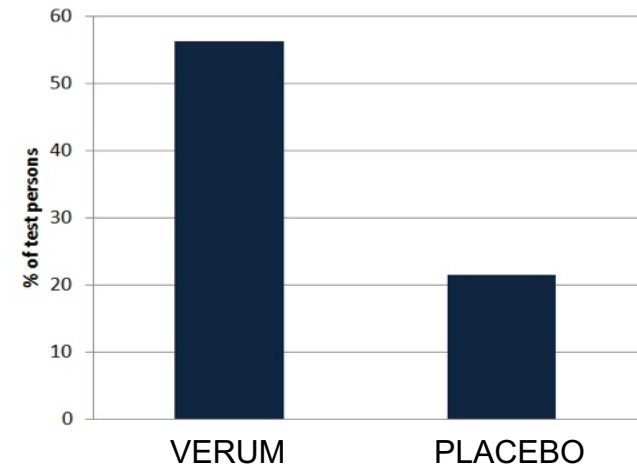
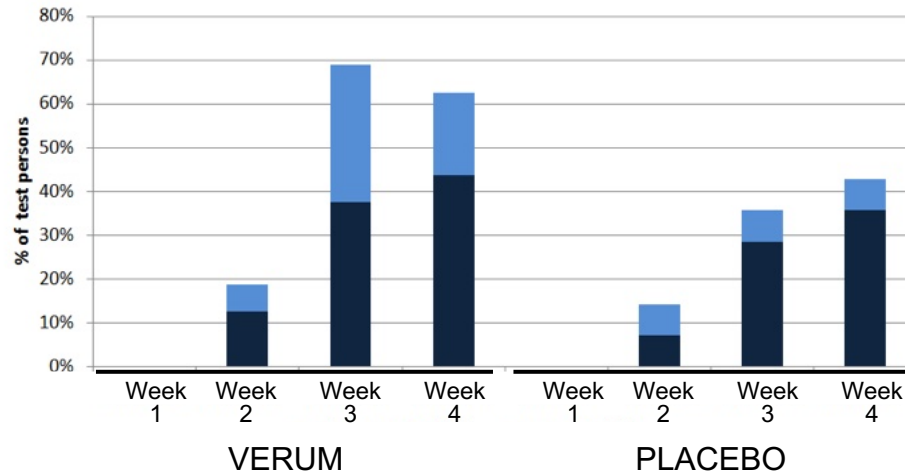
Day	Verum	Placebo	p _{Uex}
D1	22.5	10.0	
D28	149.0	36.0	0.008
D28-D1	126.5	26.0	0.003

Number of skin microbiota
(medians of absolute counts / 8cm²)

Holz et al (2017) Novel bioactive from *Lactobacillus brevis* DSM17250 to stimulate the growth of *Staphylococcus epidermidis*: a pilot study. *Beneficial Microbes*. 2017 Feb 7;8(1):121-131

stimulans®

- restores the skin barrier (Trans-Epidermal Water Loss; TEWL)
- significantly improves dry skin (DASI values; Dyshydrotic Eczema Area and Severity Index)



Study design:

Symptom: Xerodermis

Verum with bioactive extract ibiotics stimulans

Placebo controlled, randomized, double blind,
30 persons, treatment for 4 weeks

Persons with skin disorders show excellent improvement of their symptoms

„Very strong / strong“ improvement in %

	<i>Itching</i>	<i>Reddening</i>	<i>Burning</i>	<i>Pain</i>	<i>Scaling</i>	<i>Skin appearance</i>	<i>Total</i>
Atopic dermatitis	84,0	92,0	88,0	78,7	82,7	82,7	84,7
Psoriasis	85,3	85,3	73,5	70,6	85,3	85,3	80,9
Rosacea	100,0	85,7	85,7	85,7	90,5	90,5	89,7
Acne	90,0	80,0	80,0	80,0	80,0	70,0	80,0
Total	89,8	85,8	81,8	78,8	84,6	82,1	

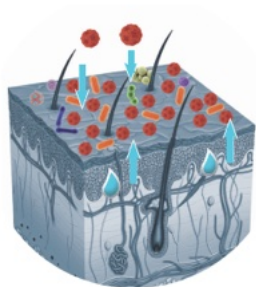
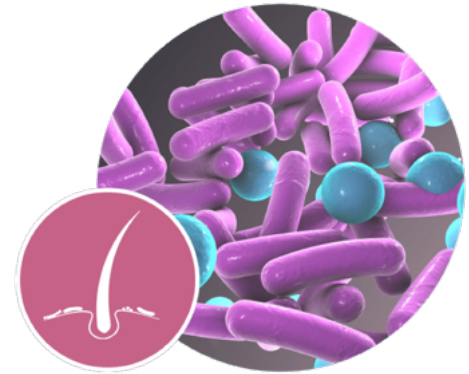
stimulans®

Is the first and only bioactive that is clinically researched and proven to actively promote the growth of beneficial bacterium *Staphylococcus epidermidis*

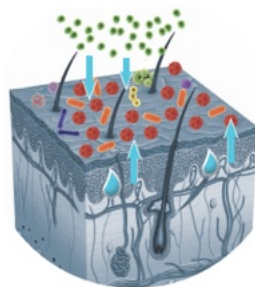
- Specifically stimulates the growth of *S. epidermidis* and other commensals
- Helps to keep inflammatory germs like *S. aureus* in check
- Restores and stabilizes the microbiome
- Skin barrier and immune system are strengthened

stimulans® is developed from probiotic lactic acid bacterium *Lactobacillus brevis*

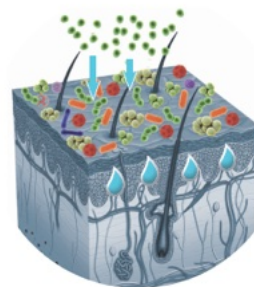
- Patent protected
- Efficacy proven in clinical studies and user tests



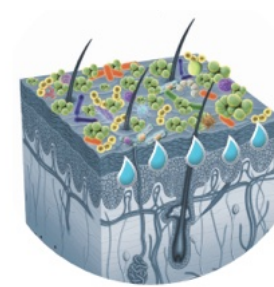
Microbiome
in dysbalance



Treatment with stimulans®



Microbiome
in balance



Repairs and stabilizes the skin microbiome

- Acute help for symptoms of
 - Atopic Dermatitis, Psoriasis, Acne, Rosacea
- Regeneration of the skin microbiome
- Relieves itching and burning
- Helps to break the cycle of
“Itching - Scratching - Inflammation“
- Reduces symptoms of inflammation
- Stabilizes the moisture balance
- For adults and children

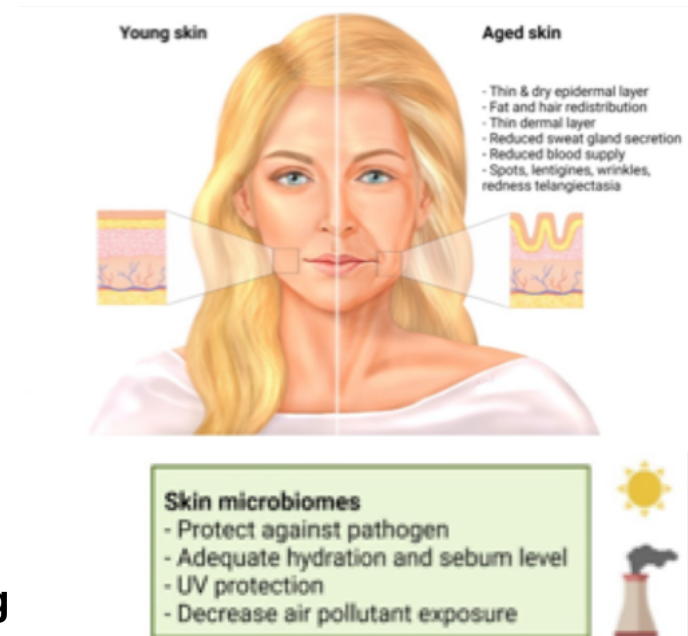
Developed from proprietary strain of lactic acid bacterium (DSM17250)
The cell-free active ingredient is an extract of metabolites. Patent protected.



How Microbiomes Affect Skin Aging¹

What is skin aging

- decreased collagen and elastin production
- lower amounts of lipids
- epidermal thinning
- antioxidant system weakens
- proinflammatory regulators increase leading to collagen degradation
- **chronic low-grade systemic inflammation leads to skin microbiota dysbiosis**



From: Ratanapokasatit et al.

Microbiome-targeted intervention to prevent skin aging

The skin microbiome

- maintains skin homeostasis
- contributes to the skin's barrier function to protect against the environment and pathogens
- **plays a significant role in skin aging and skin health¹**

¹Ratanapokasatit et al. Life 2022, 12, 936.

Consumer panels state:

ibiotics is an excellent Skin Care, better than Leading Brands! *

ibiotics
Webshop



**400 consumers tested ibiotics skin intensive care in 2022; 53% rated ibiotics „exceeding the leading brand“*

The Microbiotics Company

Some of our partners performing their own brands with stimulans® formulations

M Müller



ROSITTA®
KLINIEK



AIXSWISS



**HAUT
LIEBE**



BELANO
medical

The Microbiotics Company

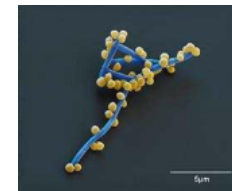
Portfolio and Product Expansion



The Microbiotics Company

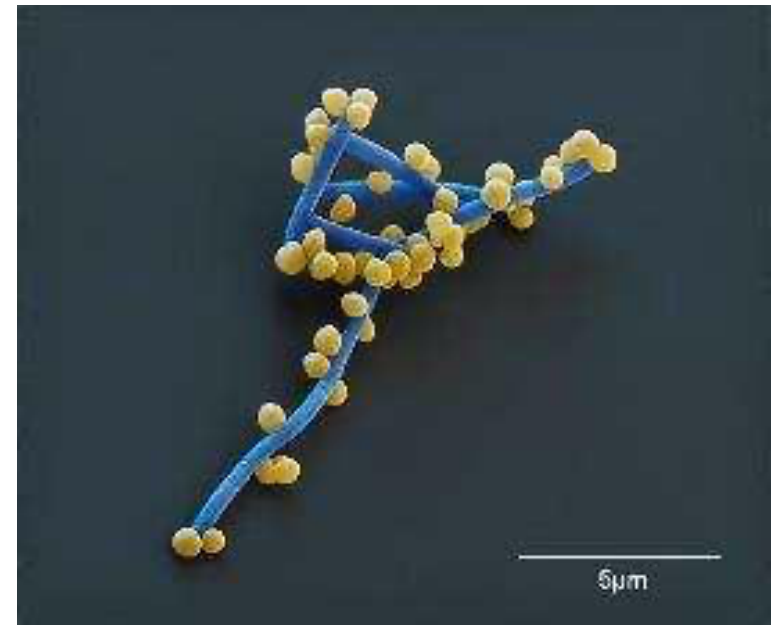


- We have made our first microbiome management project a market success.
- Sales of ibiotics® and the ingredient stimulans® increase steeply.
- It is our aim to repeat this success story with the microbiome management products ventrisana®, salvans® and aureosan®.
- Investment will be allocated to clinical studies, registration and marketing.



Treats infectious wounds, removes S. aureus and MRSA

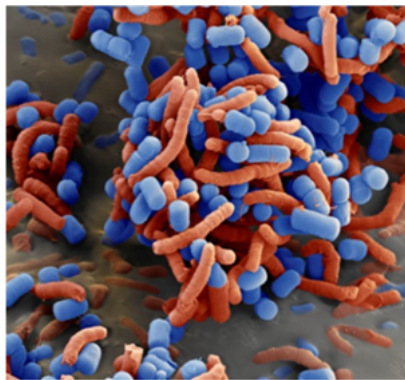
- To be registered as Medical Device (Class IIa, MDR)
- Designed for wound treatment and hospital hygiene
- Removal of MRSA colonization
- Solves currently unmet medical need, helps healing of chronic wounds, improves safety for staff and patients
- Developed from patent protected strain of lactic acid bacterium, *Lactobacillus gasseri* DSM25908
- aureosan® binds to the bacterium *Staphylococcus aureus*, clumps it up and removes it
- Bioactive ingredient is heat-inactivated cells
- **Market:**
33.000 MRSA deaths in Germany alone (*)
Global wound dressing market \$ 10 b, 2020.



* ECDC, Lancet Inf Dis 2018

Preventing periodontitis and chronic gingivitis, blocking H.pylori

- Medical Device (Class I, MDR) – successfully registered according to new Medical Device Regulation
- Unique product to manage the oral microbiome, prevent periodontitis without antiseptic or antibiotic side effects



- Contains the patent protected strain of lactic acid bacterium, *Limosilactobacillus* (L.) *reuteri* DSM17648
- Binds the pathogen *Helicobacter pylori*, clumps it up and removes it
- Fights the cause of gum inflammation and periodontitis
- Bioactive ingredient is heat-inactivated cells

C. Holz, A. Busjahn, H. Mehling, S. Arya, M. Boettner, H. Habibi, C. Lang (2015) Significant reduction in *Helicobacter pylori* load in humans with non-viable *Lactobacillus reuteri* DSM17648. A pilot study. *Probiotics & Antimicrob. Prot.* 7: 91-100

Treating and preventing throat infections, blocking bacteria (*S. pyogenes*) and viruses

- Medical Device (Class I, MDD)
- Unique mode of action to manage the oral and throat microbiome and to prevent viral infections and throat inflammation without antiseptic or antibiotic side effects



- Contains the patent protected strain of lactic acid bacterium, *Lactobacillus crispatus* DSM25988
- Binds the bacterium *Streptococcus pyogenes*, clumps it up and removes it
- Stops viruses from entering epithelial cells (SARS-CoV2 proteins, in-vitro study)
- Bioactive ingredient is heat-inactivated cells



A. Reiprich, L. Skalden, A. Raab, N. Bolotina, C. Lang (2022) *Lactobacillus crispatus* DSM25988 as novel bioactive agent to co-aggregate *Streptococcus pyogenes* and to exclude it by binding to human cells. *Beneficial Microbes* 13(1):83-94. DOI 10.3920/BM2021.0103

	stimulans / ibiotics	ventrisana	salvans	aureosan
Brand	ibiotics® & stimulans®	ventrisana®	salvans®	aureosan®
SOPs production & formulation	X	X	X	X
Data on strain management	X	X	X	X
Stability data	X	X	X	X
Safety Assessment	X	X	X	X
Clinical studies & safety studies	X	X	X	X
Customer satisfaction studies	X	X	X	
B2B & B2C customer data base	X			
Technical documentation	X	MDR, novel regulation, Class I	MDD; Class I	
Recipes for formulation	X	X	X	X
Peer reviewed paper	X	X	X	
Patents	1. WO2006136420 (A2) 2. WO2008064893 (A1) 3. WO2012107244 (A1)	1. WO2007073709 (A1) 2. WO2012168468 (A1) 3. WO2014122175 (A1) 4. WO2021093912 (A1)	1. WO2012156491 (A1) 2. WO2022180077 (A1)	1. WO2012152270 (A1)

Company	Marketed products	Platform approach (multiple products)	Business Model	Patent protected	Manufacturing and galenic know-how	Concept
 The Microbiotics Company	✓✓✓	✓✓ own products + White label	✓ B2B white label B2C own brands	✓✓✓ Covered by own IP +exclusive licenses	✓✓✓ Scaling to 50.000L plus Proprietary formulations	Postbiotics based on Lactobacillus strains selected and developed for distinct health benefits and targeted action against specific pathogens. Known mode-of-action
 s-biomedic the skin microbiome company™	✓	?	✓ B2C via Beiersdorf	✓	✗	
	✓ Diagnostic	✓✓ Diagnostic+ Cust. Therapy	(✓)	✗	✗	Prebiotic – customized through profiling
 Naked Biome	✗	therapies to treat and prevent skin disease		✓	✗	
	✓	✓	B2C			Probiotic, live bacteria

Active ingredient	Marketed products	Development stage	Strength	Weakness	Opportunity BELANO	Threats BELANO
Corticosteroids	✓		Effective and known	Short term use only, severe side effects. Not recommended for use in infants and children	No side effects. Suitable for long term use. Suitable for infants and children.	Not in dermatology guidelines yet
Moisturizers	✓		Big brands, high marketing budget	No specific efficacy	Efficacy is immediately experienced by user	Products not well known, low marketing budget
Antimicrobials	✓ Mircleos	✓ several, eg Matrisys Bioscience, Hoth Therapeutics	Removes Staph aureus	Risk of resistances and no restoration of microbiome shield	BELANO products are on the market (ibiotics series) or ready for launch (aureosan). BELANO bioactives both remove Staph aureus and restore the microbiome shield.	Products not well known, low marketing budget
Microbial transplants	✗	✓ Experimental or phase 1, eg NIAID, UCSD, Servatus	Restore the microbiome shield	To be marketed as drugs	BELANO products having the same impact are already available. No need for drug approval.	More clinical data need to be gathered

Active ingredient	Marketed products	Development stage	Strength	Weakness	Opportunity BELANO	Threats BELANO
Analgetic / Pain reliever	✓		Effective and known	Cures pain symptoms only. No patent protection.	BELANO products work against bacteria and viruses. Patent protected.	Products are not designed to reduce pain, but remove the inflammatory causes.
Antiseptics	✓		Big brands, high marketing budget	Disruptive impact on protecting microbiome	Products act specifically against pathiogenic bacteria and viruses and leave healthy microbniome unaffected.	Products not well known, need markting budget
Film formers	✓		Big brands, high marketing budget	No specific efficacy, soothing affect	BELANO products are „film former plus“ and have the added specific antipathogen activity	Products not well known, need marketing and explanation
Antimicrobials/ Antibiotics	✓		Act against all bacteria, some have also antiviral activity.	Drug classification required. No patent protection.	BELANO products act specifically and by physical mode of action (“pathogen masking”). Supplement or medical device classification. Patent protected ingredients.	Products not well known
Probiotic gum	✓		Has anti-inflammatory properties	No claims on periodontitis as it is marketed as food supplement. Live bacteria with impaired stability.	BELANO products are actnig specifically and are registered as medical device claiming periodontitis prophylaxis. Non-vialbe bacteria with high stability..	Products need marketing and explanation

BELANO focuses on treating the microbiome of the skin



Activity Benchmarks ¹

Investment raised and Exit Valuation:

BELANO	€ 10 M	(money raised)
S-Biomedics	€ 6.9 M	(money raised) sold
mbiomics	€ 13 M	(money raised)

Acquisition Highlights:

Beiersdorf



Microbiome
€ xxM (2022)



Microbiome
€ 275m
18 x EBIDTA
(2023)

novozymes



Microbiome
US\$ 125m
3x revenue
(2020)



Exit Candidates

Potential Acquirers come from:

- **Derma & Cosmetics**
- **Ingredient Suppliers**
- **Pharma**

Derma & Cosmetics

Beiersdorf



Ingredients



CRODA

Pharma:



¹ <https://www.crunchbase.com>



Dr. Bernd Wegener
CEO & Founder
till November 2023

- Experienced serial entrepreneur



- Private Investor in Healthcare Companies
- Former CEO of Brahms and BPI



Prof. Dr. Christine Lang
CSO & Founder

- Experienced serial entrepreneur



- Internationally renowned Microbiome researcher & scientist
- Former MD of Organobalance and Director of Novozymes Berlin GmbH



Johannes Lang
COO

- Manager with strong experience in Leadership and in Business Development

Thank you for your attention!



The Microbiotics Company



BELANO medical AG
Neuendorfstraße 19
16761 Hennigsdorf bei Berlin
GERMANY