Lysando®

OUR COMMITMENT IN WOUND CARE AND DERMATOLOGY

YOUR **LIFETIME** IS OUR PRIORITY.

AMR CAN AFFECT ANYONE.

WE HAVE NO TIME TO WAIT.

Resistant bacteria spare no one -
AMR can impact anyone, but it is stoppable.

Antimicrobial Resistance (AMR) is a rising problem worldwide - according to the WHO, AMR in general is one of the top 10 global public health threats facing humanity.

**Bacteria acquire resistance mechanisms over time and no longer respond to medicines like antibiotics,
making infections harder to treat and increasing the risk of disease spread, severe illness and death.**

10

Million deaths per year
worldwide due to antimicrobial
resistance in 2050 (estimate).[1]

1 Tackling Drug-Resistant Infections Globally -
AMR Review, https://amr-review.org/Publications.html

Artilysin®

paves the way out of the bacterial crisis.

Artilysin® is a new antimicrobial platform technology to combat bacterial pathogens in a wide range of applications.

The specifically designed proteins can target virtually all bacterial species, Gram-positive or Gram-negative ones.

- ACTIVE ON RESISTANT AND PERSISTENT BACTERIA.
- HELPS TO REBALANCE THE SKIN MICROBIOME.
- ENVIRONMENTALLY FRIENDLY.

It is our priority to create a world without fear of bad bacteria.

A next generation antimicrobial platform technology

Each Artilysin® is unique. It is specifically designed according to set requirements ensuring the highest possible benefit. This makes the technology versatile in its use.

As a spray, adapted to ***certain bacterial strains***, to help patients with skin infections which did not respond to classical treatment.

Depending on the indication at hand, also a broad spectrum of bacteria can be addressed simultaneously in order to be able to intervene quickly in an emergency, e.g., in sepsis, to save the patient's life.

Due to it's unique mechanism, Artilysin® even helps patients infected with resistant germs. Persistent bacteria are also not spared, making recurrent infection unlikely.

WHO's Global Priority Pathogens List - antibiotic-resistant bacteria

CRITICAL
- *Acinetobacter baumannii*
- *Enterobacteriaceae*
- *Pseudomonas aeruginosa*

HIGH
- *Enterococcus faecium*
- *Staphylococcus aureus*
- *Campylobacter* spp.
- *Salmonellae*
- *Neisseria gonorrhoeae*

MEDIUM
- *Streptococcus pneumoniae*
- *Shigella* spp.

We have achieved remarkable success in combating these pathogens by utilizing various Artilysin® molecules from our extensive portfolio.

Numerous of these antibiotic-resistant pathogens play a significant role in chronic wounds and are restricting the lives of those affected.

CHRONIC WOUNDS

WHEN WOUNDS DO NOT HEAL.

Millions of patients around the world suffer from persistent, infected and potentially life-threatening wounds. They are not only painful, but also restrict the life of every individual. The patients are exhausted - physically and emotionally.

The wound is omnipresent.
The most common causes are bacterial pathogens that prevent patients from living a pain-free life.

Biofilm - a persistent accumulation.

The formation of a biofilm in infected and chronic wounds, in which bacteria can multiply unhindered and protected, is the rule.

Antiseptic solutions or local antibiotics penetrate this protective layer at most superficially. Bacterial pathogens are therefore only reached to a limited extent and regularly enter the state of persistence.

Wound healing comes to a standstill. The treatment becomes more complicated from time to time.

Resistant bacteria - a critical evolution.

Wound care can rapidly become more complicated when doctors have to combat infections caused by antibiotic-resistant bacteria. Pathogens develop resistance to one or more antibiotics, e.g. *Staphylococcus aureus*.

This makes the treatment of chronic wounds immensely more difficult and results in a serious and permanent health risk for the patient.

In a study published in the journal "Antibiotics", samples were taken from 239 patients and species were isolated. Overall, 88% of the bacterial species in the wound samples showed resistance to at least one antibiotic.[2]

Previously successful methods for the treatment of chronic wounds are reaching their limits.

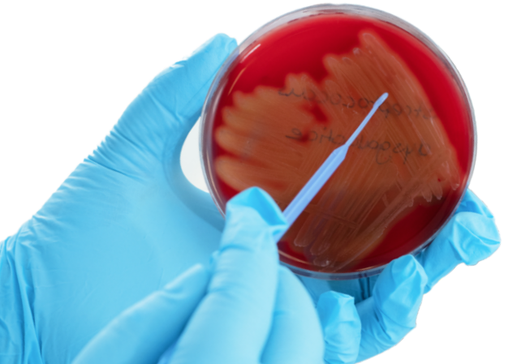
2 Microbial Species Isolated from Infected Wounds and Antimicrobial Resistance Analysis: Data Emerging from a Three-Years Retrospective Study, 10.3390/antibiotics10101162

Lysando®

making a difference today.

Antibiotics have had immense value over the last century, but their benefits have largely worn off. Resistances are making it harder to treat bacterial infections which are becoming more and more life-threatening.This situation demands a solution.

What was just an idea in 2009 is now a technology that can restore control over harmful bacteria, even the resistant and persistent ones. Bacterial resistance no longer has to pose a health threat to all of us.



Over the years, we have been able to help many people with our Artilysin® platform technology. We helped them to walk, to dance, to laugh again.

Every day we work diligently to advance towards a world fearless of bacterial infections.

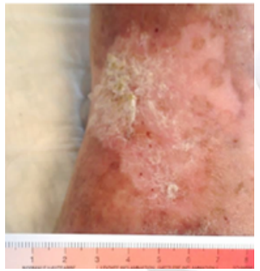
Artilysin® can be used in various areas of application, including:

- Chronic wounds
- Decubitus
- Iatrogenic wounds
- Other infected wounds

"Thank you very much for your willingness to help my husband! He was fine after his treatment and no longer had any complaints about his feet."

- wife of a patient with a chronic infected wound

The Artilysin® platform technology puts an end to untreatable bacterial infections.



Chronic wound - three years dominated by pain.

The patient suffered from the infected wound for almost 3 years.

The wound was colonised with several bacterial pathogens, including: *P. aeruginosa, E. cloacae and S. aureus.*

Conventional treatments proved ineffective in combating the infection.

After only 9 applications of Artilysin®, the wound healed completely.

The patient was free of pain.

Parallel treatment: 0.9% NaCl, Allevyn dressing (absorbent dressing), Mefix, Peha-Lastotel and compress.

72

Patients with chronic wounds.

100%

Initiation of wound healing.

Chronic wound - a month dominated by pain.

The patient suffered from the infected wound for one month.

The wound was colonised with several bacterial pathogens, including: *E. coli and S. aureus.*

Despite attempts with traditional therapies, the infection persisted.

After only 6 applications of Artilysin®, the wound healed completely.

The patient was free of pain.

Parallel treatment: Vliwaktiv® absorbent dressing pad, Tegaderm™ Matrix, Biatain®, non-adhesive.

DERMATOLOGICAL DISORDERS

Dysbiosis - an imbalance of bacteria.

When the skin microbiome is disrupted, either by an overgrowth of certain microorganisms or a decrease in diversity, it can compromise the skin's protective functions.

An imbalanced skin microbiome has been implicated in conditions such as acne, eczema, rosacea, psoriasis, and dermatitis. In these cases, the disruption in microbial equilibrium can lead to increased inflammation, impaired skin barrier function, and susceptibility to infections.

Establishing a healthy skin environment through a balanced skin microbiome aids in managing dermatological diseases or prevents their aggravation.

Artilysin® is believed to rebalance the skin microbiome by eliminating an overpopulation of bacteria like *Staphylococcus aureus and Cutibacterium acnes.*

"Many common skin diseases are associated with changes in the microbiota, termed dysbiosis. This dysbiosis is often driven by common commensal species leading to acne and eczema."[3]

3 Byrd A. et al., "The human skin microbiome", Nature Reviews Microbiology volume 16, pages143–155 (2018) (Tackling Drug-Resistant Infections Globally - AMR Review, https://amr-review.org/Publications.html)

Atopic Dermatitis - a painful battle.

Atopic dermatitis (AD) is a chronic, relapsing and lifelong inflammatory, and eczematous skin disease.
It results in itchy, red, swollen, and cracked skin. While the condition may occur at any age, it typically starts in childhood, with changing severity as people age.

The colonization of the skin by the bacterium *Staphylococcus aureus:*
It is particularly common in patients with atopic dermatitis. These bacteria exploit abnormalities in the skin barrier, triggering the expression of cytokines and exacerbating the disease.

The areas most frequently affected differ across age groups, with infants experiencing extensive involvement of the body, older children showing manifestations inside the knees and elbows, and adults experiencing symptoms on the hands and feet. Vigorous scratching of the afflicted areas not only intensifies symptoms but also heightens susceptibility to secondary skin infections.

Clinical lesions are categorized as either "acute" (oozing, edema, and erythema) or "chronic" (xerosis, lichenification, and dyspigmentation), with both types often coexisting, especially during flare-ups.

Various risk factors contribute to the development and exacerbation of atopic dermatitis, including climatic conditions, ambient air pollution, food allergies, obesity, and deficiencies in filaggrin (FLG), a protein essential for maintaining optimal skin pH and moisture balance.

Beyond the physical discomfort experienced by patients, atopic dermatitis profoundly impacts the psychological well-being of affected individuals. Severe or recurrent cases can significantly hinder daily activities, imposing substantial limitations on normal functioning.

Day 1

Day 13

Day 60

Christa Ostertag - a woman full of life.

One of Christa's greatest joys is dancing together with her husband.

But at some point, the symptoms of her atopic dermatitis became so severe that she could no longer dance. She could no longer participate in social life. A vital 78-year-old woman had her hands tied.

Using her own hands became more and more painful over the years. No conventional treatment was able to ease her symptoms like sensitivity to touch, pain, flaky skin, lichenification (development of thick, leathery skin) and eczema.

Then her husband discovered Lysando and wrote us an e-mail describing all her symptoms and her suffering. He was full of hope and we knew that we could help her. So with the help of her physician, the Lysando-Team managed to get our Artilysin® prototype spray applied to her.
Over the course of a mere 13 days, her symptoms had eased dramatically - itchiness, redness and eczema had subsided - and upon completion of treatment her hands were finally back under her own control.

Most importantly: she had regained her former quality of life. After all these years of suffering she is now a woman full of life again, dancing with her husband.

"Staphylococcus aureus is a major therapeutical challenge in patients with atopic dermatitis.
Targeting those pathogenic germs with Artilysin® and to thereby help rebalance the natural human skin microbiome is a true innovation for the good of the patient."

Priv.-Doz. Dr. med. Wolfgang G. Philipp-Dormston

"Two weeks after the treatment my wife is physically & mentally better than she has been for 3 years!"

Contact us at

Lysando®

A biopharmaceutical company at the forefront of antimicrobial technology. We aim to create a world without fear of harmful bacteria, empowering individuals to live better and longer lives.

Lysando AG - Wangerbergstrasse 91 - FL-9497 Triesenberg