

“Forum for Microbiological Medicines”

Established tradition based on science – Therapy for today and tomorrow

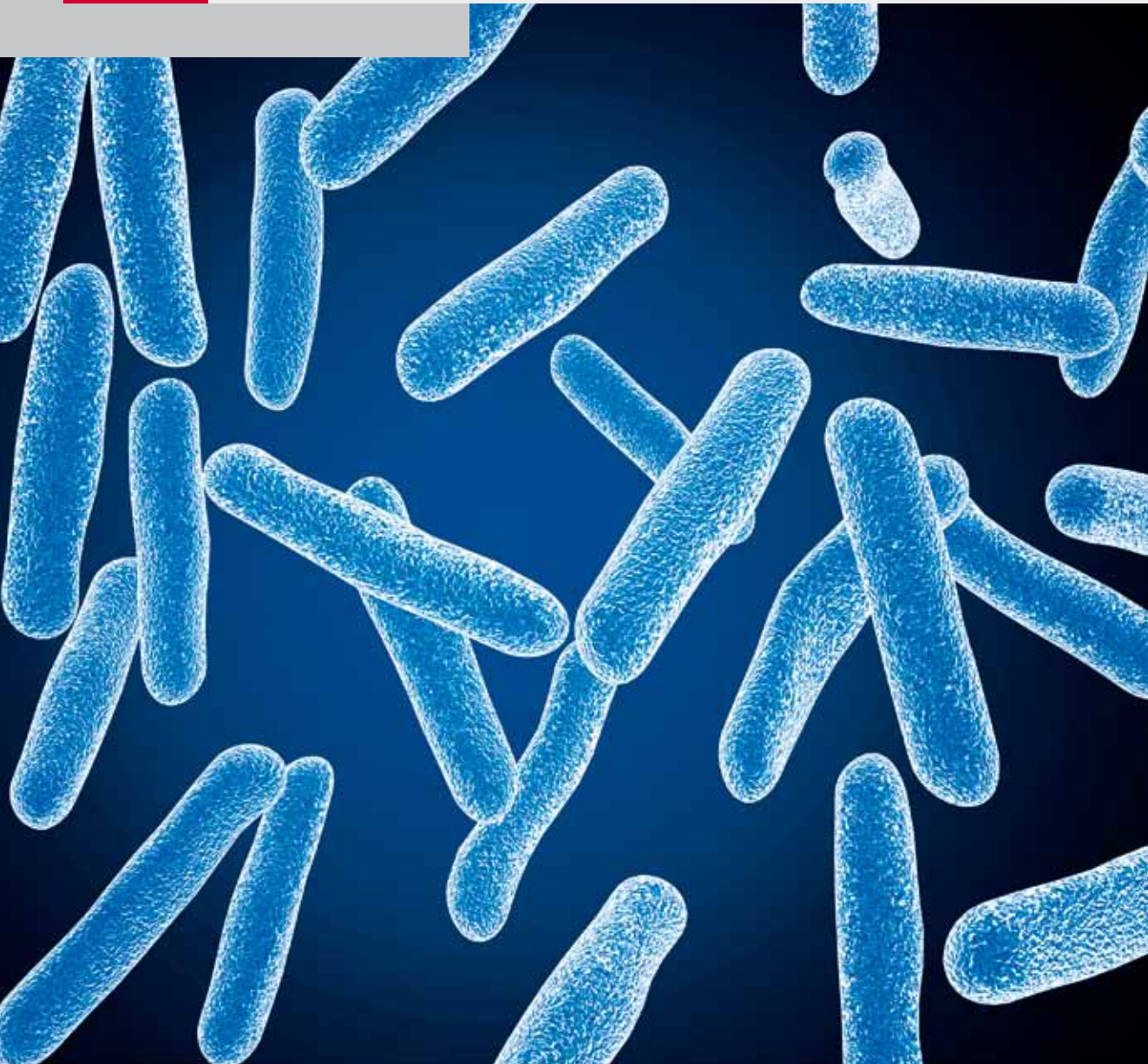
Bundesverband der
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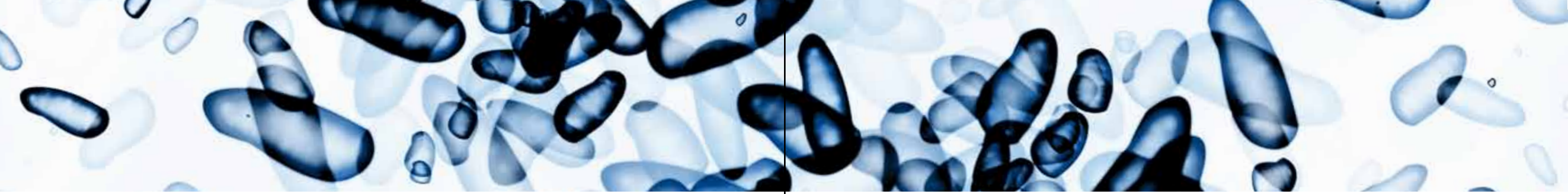
BPI



Hufelandgesellschaft e.V.

Dachverband der Ärztgesellschaften
für Naturheilkunde und Komplementärmedizin





Contents

	“Forum for Microbiological Medicines”	4
1.	Goals of the initiative	4
2.	Microbiological therapy – Over 100 years of research	5
3.	Microbiological therapy – Indications and significance today.....	8
4.	Microbiological therapy – Strengthening the immune system in a holistic manner	12
5.	A specialist for holistic microbiological therapy.....	14
6.	Application and impact	17
7.	Current framework conditions	17



“Forum for Microbiological Medicines”

Established tradition based on science – therapy for today and tomorrow

For several years, therapy with microbiological medicines has been gaining importance. The “Forum for Microbiological Medicines” – an initiative of the German Pharmaceutical Industry Association (Bundesverband der Pharmazeutischen Industrie e.V., BPI) and BPI member companies producing microbiological pharmaceuticals and diagnostics – builds on this development. This initiative aims to further enhance the acceptance of the treatment method called “microbiological therapy”. Efforts are actively supported by the Hufelandgesellschaft e.V. – the umbrella organization of medical societies for complementary and natural medicine.

1. Goals of the initiative

Traditionally, microbiological therapy ranks among “special” treatment methods, even though it is not explicitly identified as such in relevant pieces of legislation. The initiative is striving for a representative role of microbiological therapy in European and national drug laws and also in social laws.

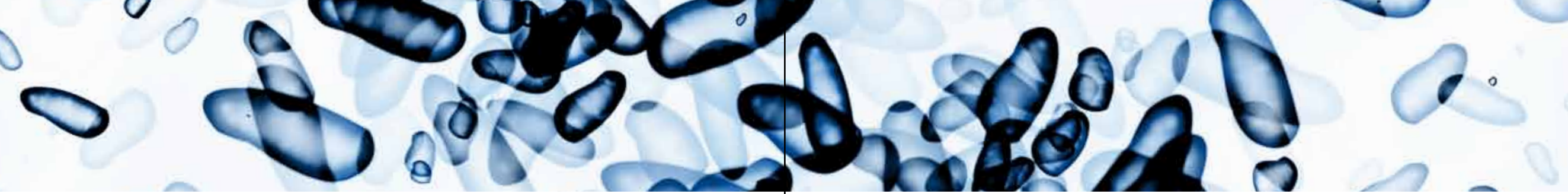
The “Forum for Microbiological Medicine” wants to help increase the awareness of this treatment method with detailed information and to include

microbiological medicine in the political and social health debate. The Forum wishes to represent the positions and concerns of physicians, of natural medicine therapists and, most importantly, of patients – for a better acceptance of microbiological therapy in the future. This brochure is addressed to circle of experts and policy makers in the public health sector.

2. Microbiological therapy – Over 100 years of research

The historic development of microbiological therapy started in the 19th century: on August 15th 1885, the paediatrician Theodor Escherich first described the bacterium coli commune, which was later renamed Escherichia coli (E. coli) in his honor.

Trying to find an antagonistic therapeutic approach for intestinal infections, Alfred Nissle isolated the first probiotic E. coli strain in 1917. The bacterium E. coli “Strain Laves 1931” was scientifically described in the eponymous year. In 1954 Dres. Kolb and Rusch set up a microbiological laboratory. The Working Group for Microbiological Therapy (Arbeitskreis für Mikrobiologische Therapie e.V.) also started in 1954. It was founded by several physicians who wanted to treat and cure patients by using natural bacteria. The term “microbiological therapy” was coined during that period, and first commercial products with Escherichia coli and enterococci as well as other microbial



preparations (e. g. autovaccines) were developed. The test laboratory located in Herborn (Hessia, Germany) turned into practice several diagnostic methods elaborated by doctors. Efforts to find indication-specific medicines involving bacteria led to an independent treatment method with various courses of action and therapy concepts. Soon the range of microbiological medicines was extended by several products containing lactic acid bacteria.

The first comprehensive textbook on microbiological therapy was published in the late 1950s, based on existing experience and impressive therapeutic success with microbiological medicines. At that time, microbiological therapy was already adopted by German physicians for almost two decades.

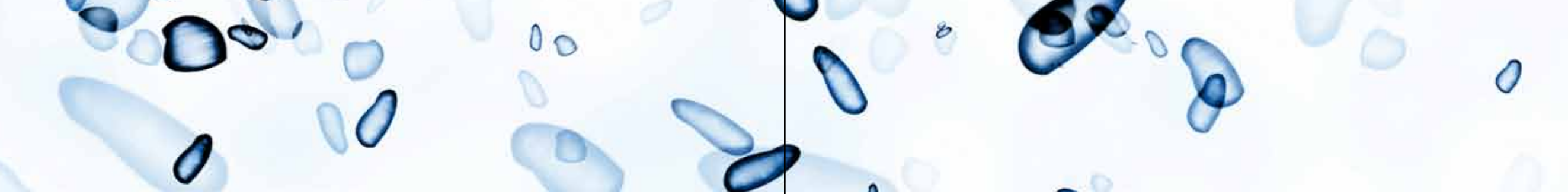


Homeopathy, a further discipline of natural medicine, also benefits from the curative effect of bacteria. This therapeutic approach goes back to Wilhelm Lux, a veterinarian in Leipzig. He obtained a homeopathic dilution from scabies pathogens in cattle and used this dilution to successfully treat other animals. Today, medicines are manufactured from different bacterial cultures while following the rules of the homeopathic pharmacopoeia. These medicines are called nosodes. They strengthen the resistance of patients and help them overcome infections. Nosodes from bacteria can therefore be considered as microbiological medicines in a broader sense.

Microbiological therapy – Proven by over 100 years of practice

With the breathtaking development of antibiotics and a change of attitude of the scientific society in the 70s of the last century, the therapeutic approach of “healing with bacteria” somewhat faded. Together with herbal remedies, microbiological medicines were frequently used by physicians and therapists with a natural medical orientation.

Over the past 90 years, however, microbiological therapy has proven its importance for medical practice. Major contributions to this development were made by medical associations such as the Alfred-Nissle-Gesellschaft and the Arbeitskreis für Mikrobiologische Therapie e. V.



In the beginning, microbiological therapy was applied by physicians and therapists in the form of individual preparations. At a later stage, small and medium-sized pharmaceutical companies realized the long-term potential of this treatment method and developed large numbers of finished drugs with high safety standards.

3. Microbiological therapy – indication and significance today

Around 70% of the German population have confidence in natural medicines. Their trust is strengthened by positive personal experience (survey by the Allensbach Institute for Public Opinion Research, 2007).

Microbiological medicines meet the goals of patients. In particular, patients want regulatory medicines to cause as few and as weak adverse reactions as possible. Here, patients focus on two aspects:

- a) Prevention and
- b) Improved state of health or cure of chronic disease.

Here, microbiological therapy has a good starting position, given its long history and sound scientific background. However, for some patients the idea of

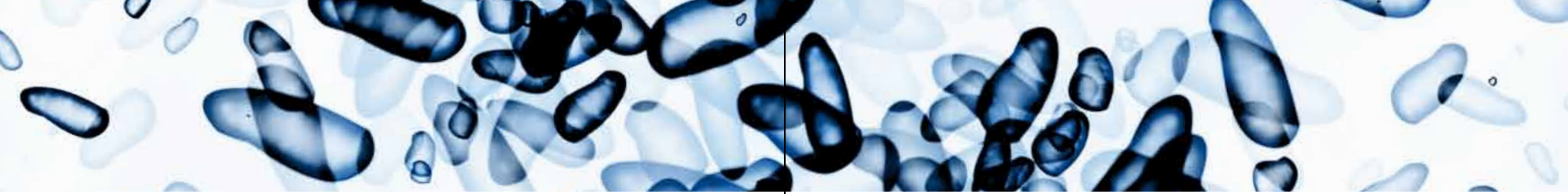
being treated with bacteria – which are usually seen as pathogens – may take some time to gain acceptance.

From the scientific point of view, there are many good reasons for an increased application of microbiological medicines:

The intestinal microflora forms a protective shield. This shield consists of over 1,000 trillion bacteria, including immunoactive bacteria such as *E. coli* and enterococci which modulate the immune system. Excessive use of antibiotics may damage the protective intestinal microflora and increase the risk of chronic infection. This can be prevented by resorting to probiotics in a targeted manner in order to control minor infections – especially in children (“probiotics” is a frequently used term for microbiological medicines). An increased application of microbiological medicines in general practice could effectively contribute to reducing the development and spread of antibiotic resistances.

Antibiotic resistances may be reduced by applying microbiological medicines

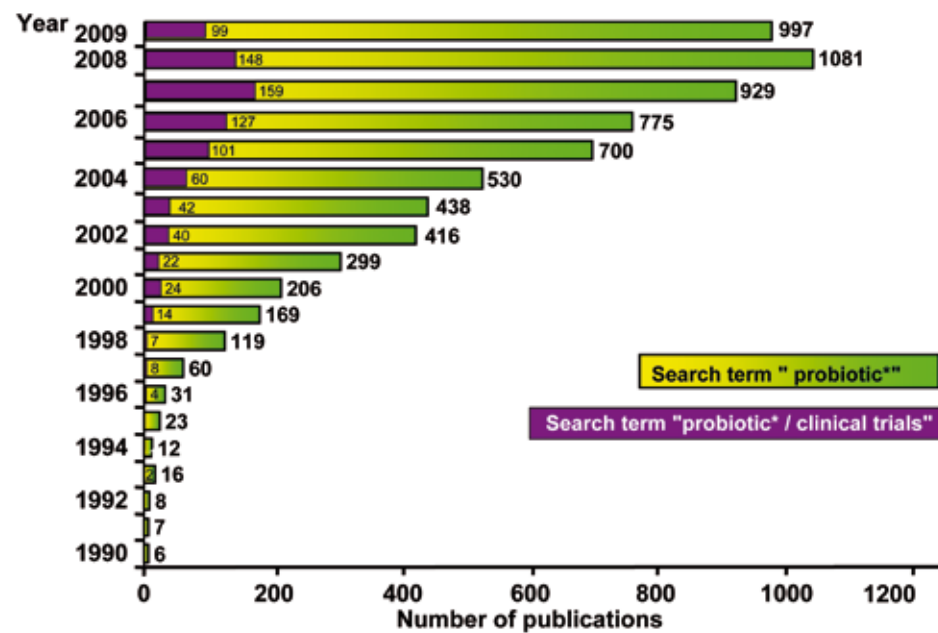
In November 2008, the German Antimicrobial Resistance Strategy (DART) of three Federal Ministries (of Health, Food and Consumer Protection, and Research) adopted a program with central fields of action which included a reduction in the use of antibiotics in general practice.



This development brings the relevance of microbiological medicines to the fore. Over the past 10 years, numerous scientific working groups at hospitals and universities have intensively looked into this therapeutic principle and substantiated the efficacy of microbiological medicines.

The increase in basic scientific and clinical publications on probiotics during the years 1990 – 2009

(Source: National Library of Medicine Database MEDLINE, March 2010)



[M. Schieman & U. Sonnenborn, 2010]

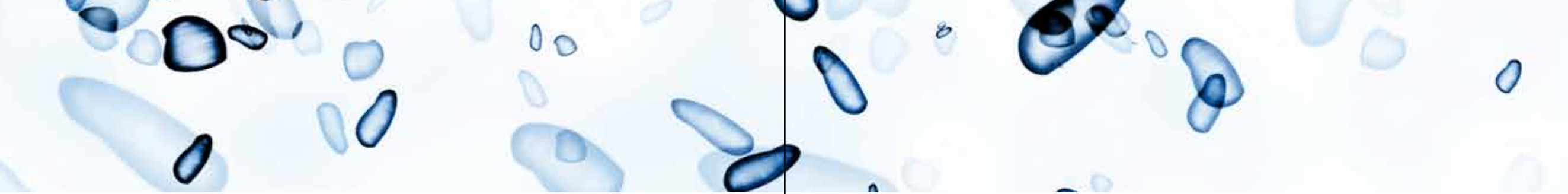
Microbiological medicines – An alternative to antibiotics in the treatment of minor infections

Modern microbiological therapy uses many bacterial species and different strains. They include, inter alia, over five different species of lactobacilli, three species of bifidobacteria, two species of enterococci, and several strains of Escherichia coli. Common features of these probiotic bacteria are their positive effects on the human immune system.

The above probiotics are used in the treatment of the following diseases:

- Minor infections (as an alternative to antibiotics),
- Acute and chronic infection in ENT (e.g. rhinitis, sinusitis, otitis, tonsillitis),
- Chronic infection of the respiratory tract,
- Chronic urogenital infection,
- Inflammatory bowel disease,
- Atopic eczema,
- Diseases of the allergic spectrum,
- Intestinal complaints (e.g. diarrhea, constipation, irritable bowel syndrome).

The scientific relevance of this therapeutic option is increasing among medical therapists. But the potential of microbiological medicines is far



from being exhausted. Today, microbiological therapy is, according to the regulations issued by physicians' associations, part of the advanced medical training for local physicians who seek to obtain additional qualification in natural medicine. Microbiological therapy is also an integral part of other fields of complementary medicine such as homeopathy or acupuncture. In Germany alone, over 25,000 physicians use this form of therapy.

Over the last years, especially chronic diseases ever more became a burden to our health care system. In many cases, there are no satisfactory treatment concepts for these diseases. Here, probiotic therapy can constitute another therapeutic approach to strengthen the immune system.

4. Microbiological therapy – strengthening the immune system in a holistic manner

The most common diseases in medical practice include chronic infection of the respiratory tract, digestive problems, food allergies, and eczema. All of these diseases can be treated with microbiological medicines.

These diseases go along with changes in the immune system and a decrease of the body's defensive system. With their various microorganisms (barrier

function) and defense tissues – such as lymph nodes and Peyer's patches – the intestines have a central role in defense. A length of almost seven meters and a surface of over 300 m² make the intestines our largest immune organ. Over 80% of acquired immunity originates in the intestines. The intestinal immune system can modify the entire immune activity of the body. In chronic disease, the use of microbiological medicines can re-establish the normal balance. Bacteria in microbiological medicines influence mucosal cells – i. e. our "internal interface" – which send important signals for numerous reactions of the immune system. Symptoms are not suppressed but underlying causes are treated.

Microbiological therapy – Immune regulation is the key to good health."

Studies have also proven the efficacy of microbiological medicines in complex clinical scenarios with a variety of causes, such as irritable bowel syndrome.

Disease patterns – e. g. in irritable bowel syndrome and eczema – clearly show that there is no simple cause-effect relationship. On the contrary, several triggers are involved and they can have different impacts.

The intake of microbiological medicines also results in an increased formation of protective antibodies of the mucosa (secretory IgA). With this self-activating protective shield, bacterial and viral infections – e. g. of the respiratory tract – are overcome faster and more easily, and relapses are prevented.

5. A specialist for holistic microbiological therapy

Complementary medicine always focuses on a holistic approach and self-healing processes. E. g., experience from different fields of medical practice is aligned even before the underlying mode of action is discovered.

Microbiological therapy is also about the activation of self-healing and the gentle triggering of regulatory mechanisms in the body. As Paracelsus said 400 years ago “Death sits in the bowels”. Today, we would rephrase that to “The bowels are the center of health”. Intestines are more than a digestive organ. 70–80% of all active immune cells are concentrated along the intestinal mucosa. Microbiological therapy therefore revolves around our immune system.

Over the past few years, research has been providing impressive data on this process. Any imbalance in the normal composition of bacteria on our mucous membranes has far-reaching consequences to the immune regulation of our body: in such situations, immune cells often send out messenger substances that can trigger and sustain allergic or inflammatory reactions.

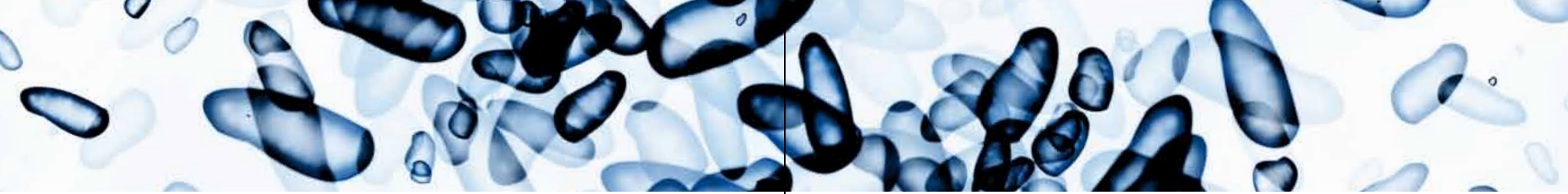
Scientists use the term “functional field” to describe the correlation between indigenous bacteria, intestinal epithelial cells with their protective and digestive functions, and the immune system with its multitude of cell types. Figuratively speaking, the only way to fight smoke is to extinguish the fire. Likewise, the treatment of allergies, food intolerances, and many inflammatory diseases starts by re-establishing the natural composition of the normal microflora.

Different medicines with suitable bacteria are available to physicians for this purpose. Today, comprehensive training of physicians in microbiological therapy is offered by the Arbeitskreis für Mikrobiologische Therapie e. V.. The certificate awarded in the training course of microbiological therapy demonstrates to patients the competence of their attending physician in this field.

Natural healing has a long tradition in Germany. Here, some 15,000 physicians have an additional qualification in natural medicine. The training for this qualification has a holistic orientation and enables the full use of all options of microbiological therapy.



Training in natural medicine lasts several years and includes an overview of complementary medical methods. During this training physicians become familiar with the principles of microbiological therapy. As a result of well-founded scientific studies, microbiological therapy has also gained an important position in “mainstream” medicine.



Countries where microbiological therapy is currently being applied

● **Europa**

- Austria
- Benelux
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- Hungary
- Italy
- Latvia
- Lithuania
- Poland
- Portugal
- Spain
- Switzerland
- Ukraine
- United Kingdom

● **Worldwide**

- Australia
- Azerbaijan
- Belarus
- China
- Columbia
- Hong Kong
- Israel
- Japan
- Korea
- Pakistan
- Russia

6. Application and impact

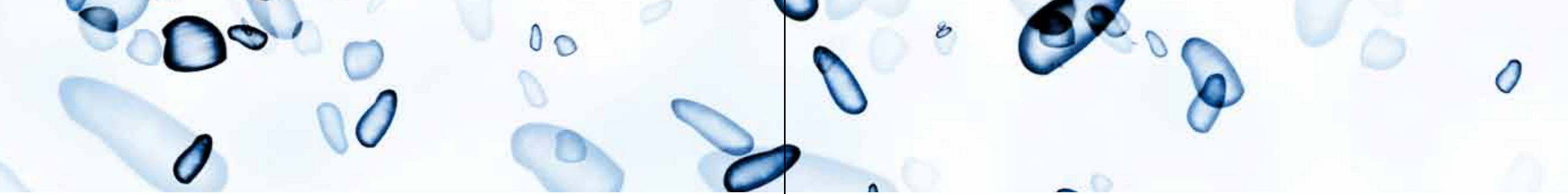
A glance at other European countries – e.g. Austria, Benelux, Italy, and Switzerland – shows that microbiological therapy is firmly established in European medicine. Today, microbiological therapy is being applied in over 20 countries worldwide, resulting in a high level of awareness and wide range of users.

7. Current framework conditions

Irrespective of the good starting position for drug therapy with natural bacteria, regulatory and health-political framework conditions for natural therapeutic principles have worsened over the past 15 years.

Only a few years ago, microbiological medicines with their natural bacteria, i. e. bacteria naturally occurring in humans, had the status of “biological medicines”. In contrast, small and medium-sized manufacturers of these medicines must make intensive efforts today to clearly separate their drugs from the so-called “biologicals”. The latter are modern biotechnological products manufactured in part from genetically modified microorganisms.

A safe therapeutic principle which proven relevance in medicine for many decades is now constantly being confronted with the requirements for “biologicals” in regulatory procedures.



The demands for legislation are clear: adequate regulatory requirements are needed for microbiological medicines. Such rules need to pay due attention to the established good manufacturing practice and to drug safety and efficacy as proven by experience and clinical trials. This step is essential to secure the future of microbiological therapy!

Manufacturing method: microbiological medicines are no biologicals.

Already now, suitable instruments are available, e. g. including microbiological medicines in the authorisation rules for “traditional medicinal products”. According to a report by the EU Commission dated May 30th, 2007, on the application of provisions to traditional herbal medicinal products, an extension of relevant marketing authorisation requirements to microbiological medicines would be rational.

As this is about maintaining the diversity of therapies, the above demand is supported, inter alia, by major medical associations for naturopathic treatment and complementary medicine. From the beginning over 100 years ago to the present, microbiological medicines have been used successfully. They are the first biological medicines with a scientific background. Hardly any modern, evidence-based drug can look back on such a long tradition.

Please contact any of the following organizations for further information:

- Arbeitskreis für Mikrobiologische Therapie e. V.
www.amt-herborn.de
- Alfred-Nissle-Gesellschaft e. V.
www.a-nissle-ges.de
- Bundesverband der Pharmazeutischen Industrie e. V.
www.bpi.de
- Hufelandgesellschaft e. V.
www.hufelandgesellschaft.de

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