

## Bacteriophage-Therapy

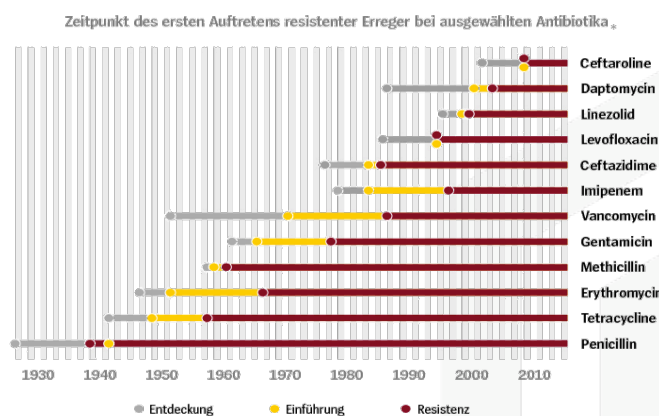
semisolid, solid and release-modified application

Standardized, indication-specific bacteriophage products as semisolid and solid application forms with acute and modified release facilitate the therapeutic use and handling of bacteriophages.

### Issues

Bacterial infections are still among the leading causes of death. In addition, the number of nosocomial infections is increasing and resistance to antibiotics is being increasingly observed.

Figures from the Robert Koch Institute show annual death rates of 4 % of Germany-wide nosocomial infections.



### Latest

Clinical studies, such as the current *Phagoburn* and *Page4Cure*, show very good curative results of treatments with bacteriophage. Beyond that, no side effects have been detected. In addition, the bacteriophage solutions used could be produced according to the qualitative requirements of the European Pharmacopoeia. The studies thus demonstrate quality, efficacy and safety.

### Our Solution

Bacteriophages are often described as a means of solving the problem of resistance. The impression should not be given that the currently used antibiotics are losing importance due to the therapeutic establishment of products based on bacteriophages. Bacteriophages make it possible to drastically reduce the use of antibiotics in all areas of application, can ensure the success of therapy and limit the therapeutic dosage of antibiotics.

A bacteriophage species has only one bacterial species as target, which is infected by the corresponding virus, so that the bacterial cell produces only clones of the infecting virus and is consequently destroyed. This releases the clones of the bacteriophage, which can then infect other bacteria of the same species. Bacteriophages that do not find target bacteria are excreted from the body via urine and feces.

Bacteriophage therapy is therefore a gentle, efficient and antibacterial therapy for all patients, especially for elderly and/or weakened persons, since no side effects or other physiological weaknesses are initiated.

## Product Variations

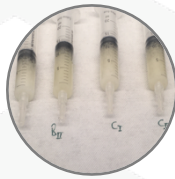
All products can be generated with different phage mixtures.

The contained phages of the finished products are compiled according to scientific data on the bacterial load of the corresponding indication.

### semi-solid forms

Sterile forms of different viscosities can be produced in which the phage present in the matrix remains lytically active.

The forms are reduced in viscosity when applied on / in the body and form an antibacterial coating.



### combinations

By means of a two-injection technique, the forms of different final viscosities and the phage mixtures, which differ in the bacteriophages compiled according to indications, can be freely combined.

The end product is sterilely packed with an application aid, so that the product-generation and thus the selection of the phage mixture can be carried out shortly before application, even at the operating table.



### solid forms

A solid form is provided as a sponge-like, solid phage application. This product is also used for circular coating of anastomoses, for acute and persistent infection prophylaxis up to days post-operatively.



All application forms could be generated sterilely under aseptic production. The testing according to the direct injection method (Ph. Eur. 2.6.1) was extended to nine days to increase the detection probability of bacteria contained in the final product.

## Summary

Compared to the phage solutions currently used in research and clinical trials, the semisolid and solid forms of application offer the prospect of a situationally appropriate and sufficient antibacterial therapy with regard to extra- and intra-corporal application.

The bacteriophages contained in each case, based on investigations and studies against the most common germs of the respective indication, enable the production of standard bacteriophage products.

**This is a revolution for the applicability of bacteriophage therapy.**



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