

# Probiophage DF™



*Dairy-free bacteriophage/probiotic combination formula to support the proliferation of beneficial bacteria in the intestinal tract*

*By David Brady, ND, DC, CCN, DACBN & Suzanne Copp, MS*

**THIS INFORMATION IS PROVIDED FOR THE USE OF PHYSICIANS AND OTHER LICENSED HEALTH CARE PRACTITIONERS ONLY. THIS INFORMATION IS INTENDED FOR PHYSICIANS AND OTHER LICENSED HEALTH CARE PROVIDERS TO USE AS A BASIS FOR DETERMINING WHETHER OR NOT TO RECOMMEND THESE PRODUCTS TO THEIR PATIENTS. THIS MEDICAL AND SCIENTIFIC INFORMATION IS NOT FOR USE BY CONSUMERS. THE DIETARY SUPPLEMENT PRODUCTS OFFERED BY DESIGNS FOR HEALTH ARE NOT INTENDED FOR USE BY CONSUMERS AS A MEANS TO CURE, TREAT, PREVENT, DIAGNOSE, OR MITIGATE ANY DISEASE OR OTHER MEDICAL CONDITION.**

## Probiophage DF™ is a specialized bacteriophage formulation combining:

- Four types of phages (as the proprietary bacteriophage blend PrePhage™)

Seven strains of probiotics

This product is formulated to support the proliferation of beneficial bacteria throughout the small and large intestines in order to promote healthy GI and immune function. This dairy-free formulation is featured in a delayed-release capsule to increase intact delivery to the small intestine by protecting these organisms from stomach acid.

## What is a Bacteriophage?

Bacteriophages, or simply phages – whose name means to eat or devour in Greek – are benevolent viruses that exclusively infect bacteria. Phages are the most abundant naturally occurring organisms on earth and are relatively benign. We are surrounded by phages, as they can be found virtually everywhere, including in soil, food and drinking water. A single drop of seawater can hold millions of phages and the human body contains billions of them. They prey only on bacteria, never human cells, and bacteria have trouble becoming immune to them. They are considered to be a safe and effective way to help reduce the density of specific pathogenic bacterial populations.

Great interest in bacteriophages was sparked in 1919 when it was demonstrated that they could be used to treat infectious diseases, but in the U.S. that interest waned with the advent of antibiotics. However, research continued in the former Soviet Union, where bacteriophages are widely used to this day.

Phages continuously change and adapt with their host bacteria to destroy them more effectively. Thus, phage therapy may help to eliminate the vicious cycle of bacteria developing a resistance to antibiotics.

## Bacteriophages:

- The most abundant naturally occurring organisms on earth
- Widely distributed in water, soil, animals and humans and consumed daily in common foods
- A type of virus that can infect bacterial cells, replicate, and cause the destruction of the bacterium
- Replication occurs by one of two cycles, either the lytic or lysogenic cycle
- Lytic phages are highly target-specific – activity confined to one or a limited number of bacteria
- Provide a non-host derived immunity
- Lytic phages are completely safe, considered GRAS (through review of published scientific literature, and based on their common use in food), with some having been approved by the FDA for use in foods as a means to control foodborne pathogens
- Eli Lilly first sold as an OTC in the 1920s
- Very specific phages classify as prebiotics

## Benefits of Probiophage DF™

- Specific against *Escherichia coli* (*E. coli*), the most prevalent infecting organism in the family of gram-negative bacteria known as enterobacteriaceae

## Common conditions associated with *E. coli*:

- **Irritable Bowel Syndrome** – Many studies have linked irritable bowel syndrome (IBS) with small intestinal bacterial overgrowth (SIBO). (*Pylaris E, et al. Dig Dis Sci. 2012*)
- **Urinary Tract Infections (UTIs), which include cystitis, kidney infections and other infections of the urinary tract** – UTIs are the most common infections caused by *E. coli*; most often caused by bacteria from the GI tract being spread to the urethra and then traveling from the urinary tract to the bladder. (*Srivastava R, et al. J Med Microbiol. 2014*)
- **Vaginitis** – *E. coli*, which is a normal inhabitant of the rectum, can cause bacterial vaginitis if spread to the vaginal area. (*Cook SW, et al. Infect Dis Obstet Gynecol. 2001*)

## How Bacteriophages Destroy Target Bacteria

1. Lytic phages invade bacterial cells and replicate within the bacterium, disrupting bacterial metabolism and causing the bacterium to lyse.
2. Replicated bacteriophages are then able to spill out and attack other existing bacteria.
3. As the population of the target bacterium declines, the numbers of the corresponding phage will also decline.
4. The application of phages to bacteria-containing environments makes a quantitative difference, not a qualitative one, since phages already exist in many environments, including water, soil, food, and among normal human flora.

## PrePhage™

The PrePhage™ mixture in Probiophage DF™ is a proprietary blend comprised of four *bacteriophages*, which:

- Are lytic, T4 phages
- Are able to replicate via the lytic cycle only
- Infect and inhibit the growth of E. coli only
- Have been shown to significantly increase bifidobacteria growth

## Bacteriophages as Prebiotics

Highly specific bacteriophages may be classified as prebiotics since they enhance the growth of beneficial bacteria in the gastrointestinal tract. Beneficial GI bacteria such as bifidobacteria, lactobacillus and others, are in a constant battle for food and space. Inhibition of the growth of neutral or potentially harmful bacteria creates an availability of space and resources to allow the growth of beneficial organisms.

## Advantages of PrePhage™ Over Traditional Prebiotics

Most other prebiotics are non-digestible fibers that often produce the negative side effects of gas and bloating. They may be required in large doses and for prolonged periods, and may not be effective in the small bowel since their activity is localized to the large intestine. In some people they may also increase the growth of unwanted bacteria in the GI tract.

## In contrast, PrePhage™ has the following features:

- No fermentation and therefore no gas or bloating
- Independent of environmental conditions
- Effective in small doses
- Efficacious within hours
- Active in small and large intestines

## The inclusion of phages as prebiotics helps to:

- Increase the survivability of probiotics
- Create more space for good bacteria by reducing counts of unwanted bacteria
- Provide a natural way to shift intestinal bacteria toward more beneficial organisms

## How to Take:

- As a dietary supplement, take one capsule per day with a meal, or as directed by a health care practitioner.

**Probiophage DF™**  
Available in 60 & 120 count capsules

## Supplement Facts

Serving Size 1 capsule

Amount Per Serving	% Daily Value
Proprietary Probiotic Blend (Lactobacillus acidophilus, Bifidobacterium bifidum, Bifidobacterium longum, Lactobacillus rhamnosus, Bifidobacterium breve, Lactobacillus casei, Streptococcus thermophilus)	5 billion cfu *
PrePhage™ Proprietary Bacteriophage Prebiotic	15 mg *

\*Daily Value not established.

**Other Ingredients:** Delayed release capsule (hydroxypropyl methylcellulose [HPMC], water, gellan gum), medium chain triglycerides.



## Highlights of PrePhage™

- Has narrow host ranges; only interacts with select bacteria
- Enhances growth of good bacteria
- Commonly found in foods we consume
- Non-GMO
- Safe

For a list related references, please visit:

[http://www.ncbi.nlm.nih.gov/sites/myncbi/collections/public/1FGVetIL4DALRQHXL\\_MoEoIA6/](http://www.ncbi.nlm.nih.gov/sites/myncbi/collections/public/1FGVetIL4DALRQHXL_MoEoIA6/)

To contact Designs for Health, please call us at (800) 847-8302, or visit us on the web at [www.designsforhealth.com](http://www.designsforhealth.com).