

Bacteriophage B051, Infectious for *Listeria ivanovii*

Catalog No. HM-584

For research use only. Not for human use.

Contributor:

Martin Loessner, Professor and Jochen Klumpp, PhD, Institute of Food, Nutrition and Health, Swiss Federal Institute of Technology (ETH Zürich), Zürich, Switzerland

Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Caudovirales*, *Siphoviridae*, *Unclassified Siphoviridae*

Family: *Siphoviridae*

Strain/Isolate: Bacteriophage B051

Host: *Listeria ivanovii*

Original Source: Bacteriophage B051 was derived from ultra-violet induction of *Listeria innocua* bacterium and propagated in *Listeria ivanovii* (*L. ivanovii*).¹

Comments: Bacteriophage B051 ([HMP ID 9749](#)) is a reference genome for [The Human Microbiome Project](#) (HMP). HMP is an initiative to identify and characterize human microbial flora. The complete genome of bacteriophage B051 is currently being sequenced at the [J. Craig Venter Institute](#).

Note: HMP material is taxonomically classified by the depositor. Quality control of these materials is only performed to demonstrate that the material distributed by BEI Resources is identical to the deposited material.

Bacteriophage B051 is a highly-selective virus that is extremely effective at lysing *L. ivanovii*, a Gram-positive foodborne pathogen that can cause life-threatening infections primarily for ruminant animals and is also an opportunistic pathogen for humans.^{2,3} Bacteriophage B051 belongs to the unclassified *Siphoviridae* family of viruses, which are non-enveloped and display long, noncontractile, filamentous tails, linear dsDNA and hexagonal capsids.⁴

Material Provided:

Each vial contains approximately 0.5 mL of bacteriophage in Brain Heart Infusion broth.

Packaging/Storage:

HM-584 was packaged aseptically in cryovials. The product is provided frozen and should be stored at -20°C or colder immediately upon arrival. For long-term storage, the product should be stored at -80°C or colder or in the vapor phase of a liquid nitrogen freezer. Freeze-thaw cycles should be avoided.

Growth Conditions:

Host: *L. ivanovii* (strain WSLC3009 recommended)

Growth medium for host:

Brain Heart Infusion broth or equivalent

Brain Heart Infusion agar or equivalent

Incubation of host:

Temperature: 37°C

Atmosphere: Aerobic

Propagation of host:

Note: Host homogeneity is recommended for your intended use, please colony-purify your bacterial host prior to use.

1. Keep bacterial stock frozen until ready for use, then thaw.
2. Transfer a thawed aliquot into a single tube of broth.
3. Incubate the tube at 37°C for 24 hours.

Growth medium for bacteriophage:

Brain Heart Infusion agar or equivalent

Brain Heart Infusion soft agar overlay (0.5%) or equivalent

Incubation of host with bacteriophage:

Temperature: 30°C

Atmosphere: Aerobic

Propagation of bacteriophage:

1. Prior to opening the vial, an actively growing broth culture (24-hour incubation) of the recommended host strain should be prepared. Keep bacteriophage vial frozen until ready for use, then thaw.
2. Pre-warm plates and overlay the surface with 2.5 mL of melted 0.5% agar containing 1 to 2 drops of the host. Allow overlay to harden.
3. Prepare serial dilutions of thawed bacteriophage (if desired) and spot onto the plate. Allow to dry.
4. Incubate the plate at 30°C for 24 hours.

Note: Spotting the phage on plates makes visualizing the lysis easier. If phage is added directly to soft-agar before pouring plates, hazy or tiny plaques may be difficult to see. Resistant host bacteria may also mask plaque formation.

Cytopathic Effect: Lysis of *L. ivanovii*; individual plaques should be countable at higher dilutions.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH as part of the Human Microbiome Project: Bacteriophage B051, Infectious for *Listeria ivanovii*, HM-584."

Biosafety Level: 2

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories](#). 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:

1. Loessner, M. J. "Improved Procedure for Bacteriophage Typing of *Listeria* Strains and Evaluation of New Phages." *Appl. Environ. Microbiol.* 57 (1991): 882-884. PubMed: 2039238.
2. Vázquez-Boland, J. A., et al. "*Listeria* Pathogenesis and Molecular Virulence Determinants." *Clin. Microbiol. Rev.* 14 (2001): 584-640. PubMed: 11432815.
3. Guillet, C., et al. "Human Listeriosis Caused by *Listeria ivanovii*." *Emerg. Infect. Dis.* 16 (2010): 136-138. PubMed: 20031061.
4. Klumpp, J. and M. J. Loessner. "*Listeria* Phages Genomes, Evolution, and Application." *Bacteriophage* 3 (2013): e26861-1. PubMed: 24251077.
5. Loessner, M. J. and M. Busse. "Bacteriophage Typing of *Listeria* Species." *Appl. Environ. Microbiol.* 56 (1990): 1912-1918. PubMed: 2116763.
6. [HMP ID 9749](#) (Bacteriophage B051)

ATCC® is a trademark of the American Type Culture Collection.

