

***Listeria monocytogenes*, Strain Li 21**

**Catalog No. NR-107**

(Derived from ATCC® 19112™)

**For research only. Not for human use.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Listeriaceae*, *Listeria*

Species: *Listeria monocytogenes*

Strain: Li 21 (also referred to as NCTC 5348 and WSLC 1001)<sup>1</sup>

Serotype: 1/2c

Original Source: *Listeria monocytogenes* (*L. monocytogenes*), strain Li 21 was isolated in 1935 from human cerebrospinal fluid in Scotland.<sup>2</sup>

Comment: The complete genome of *L. monocytogenes*, strain Li 21 is available (GenBank: [CP007160](https://www.ncbi.nlm.nih.gov/nuccore/CP007160)).<sup>1</sup>

*Listeria monocytogenes* is a Gram-positive, facultative intracellular bacterium that is extremely tolerant of external stresses (pH 3 to 12, temperatures ranging from 1°C to 45°C and high salt). *L. monocytogenes* encompasses a diversity of strains with varied virulence and pathogenic potential. There are 13 serotypes (1/2a, 1/2b, 1/2c, 3a, 3b, 3c, 4a, 4b, 4c, 4d, 4e, 5 and 7) that have been isolated from mammalian, bird, fish and shellfish species as well as environmental sources. Of these, only 3 serotypes (1/2a, 1/2b and 4b) are frequently isolated from outbreaks of human listeriosis. The most common cause of infection is through ingestion of contaminated foods, in particular milk, meat or vegetable products. The infective dose is unknown and varies with species.<sup>3</sup>

**Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in Brain Heart Infusion broth supplemented with 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

**Packaging/Storage:**

NR-107 was packaged aseptically, in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

**Growth Conditions:**

Media:

Brain Heart Infusion broth or equivalent

Brain Heart Infusion agar or Sheep Blood agar or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use, then thaw.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tubes and plate at 37°C for 1 day.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Listeria monocytogenes*, Strain Li 21, NR-107."

**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/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Klumpp, J., et al. "Genome Sequences of Three Frequently Used *Listeria monocytogenes* and *Listeria ivanovii* Strains." Genome Announc. 2 (2014): e00404-e00414. PubMed: 24786957.
2. Gibson, H. J. "A Pathogenic Diphtheroid Bacillus from a Fatal Case of Meningitis." J. Pathol. Bacteriol. 41 (1935): 239-252.
3. Liu, D., et al. "Toward an Improved Laboratory Definition of *Listeria monocytogenes* Virulence." Int. J. Food Microbiol. 118 (2007): 101-115. PubMed: 17727992.
4. Hain, T., C. Steinweg, and T. Chakraborty. "Comparative and Functional Genomics of *Listeria* Spp." J. Biotechnol. 126 (2006): 37-51. PubMed: 16757050.
5. Tominaga, T. "Rapid Discrimination of *Listeria monocytogenes* Strains by Microtemperature Gradient Gel Electrophoresis." J. Clin. Microbiol. 44 (2006): 2199-2206. PubMed: 16757621.
6. Glaser, P., et al. "Comparative Genomics of *Listeria* Species." Science 294 (2001): 849-852. PubMed: 11679669.
7. Murray, E. G. D., R. A. Webb and M. B. R. Schwann. "A Disease of Rabbits Characterized by a Large Mononuclear Leucocytosis, Caused by a Hitherto Undescribed Bacillus *Bacterium monocytogenes* (n. sp.)." J. Pathol. Bacteriol. 29 (1926): 407-439.
8. Paterson, J. S. "The Antigenic Structure of Organisms of the Genus *Listerella*." J. Pathol. Bacteriol. 51 (1940): 427-436.
9. Jaradat, Z. W. and A. K. Bhunia. "Adhesion, Invasion, and Translocation Characteristics of *Listeria monocytogenes* Serotypes in Caco-2 Cell and Mouse Models." Appl. Environ. Microbiol. 69 (2003): 3640-3645. PubMed: 12788773.
10. Kaufmann, S. H. E. "Acquired Resistance to Facultative Intracellular Bacteria: Relationship Between Persistence, Cross-Reactivity at the T-Cell Level, and Capacity to Stimulate Cellular Immunity of Different *Listeria* Strains." Infect. Immun. 45 (1984): 234-241. PubMed: 6610639.
11. Seeliger, H. P. R. Listeriosis 2nd ed. Basel: Karger, 1961.

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