

***Bacillus licheniformis*, Strain NRS 712**

Catalog No. NR-2499

(Derived from ATCC® 9945™)

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Contributor:

ATCC®

Product Description:

Bacteria Classification: *Bacillaceae*, *Bacillus*

Species: *Bacillus licheniformis*

Strain: NRS 712

Original Source: Isolated in 1938 from flour¹

Comments: *Bacillus licheniformis*, strain NRS 712 was deposited at ATCC® in 1945 by Dr. Nathan R. Smith. This strain reportedly produces D-glutamic acid polypeptide.²

Bacillus licheniformis (*B. licheniformis*) is a Gram-positive, spore-forming, facultative anaerobe that is widely distributed as a saprophytic organism in the environment.³ It is a common contaminant in raw milk and its spores are highly resistant to pasteurization treatments. In addition, *B. licheniformis* can cause a variety of infections in humans including meningitis. *B. licheniformis* is used to manufacture enzymes, antibiotics, and biochemicals.³

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Nutrient Broth supplemented with 20% glycerol.

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

Packaging/Storage:

NR-2499 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:

Nutrient Broth

Nutrient Agar

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use; thaw slowly.
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 24 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Bacillus licheniformis*, Strain NRS 712, NR-2499."

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, 2007; see www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm.

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References:

1. Smith, N. R., R. E. Gordon, and F. E. Clarke. "Aerobic Spore Forming Bacteria." U.S. Dep. Agric. Monogr. 16 (1952): 1-148.

2. Mark, S. S., et al. "A Heavy Metal Biotrap for Wastewater Remediation Using Poly- γ -Glutamic Acid." *Biotechnol. Prog.* 22 (2006): 523–531. PubMed: 16599572.
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4. Potter, M., et al. "Cultivation of Bacteria Producing Polyamino Acids with Liquid Manure as Carbon and Nitrogen Source." *Appl. Environ. Microbiol.* 67 (2001): 617–622. PubMed: 11157224.
5. Schaffer, C., et al. "Purification and Structure Elucidation of the *N*-acetylbacillosamine-containing Polysaccharide from *Bacillus licheniformis* ATCC 9945." *Eur. J. Biochem.* 268 (2001): 857–864. PubMed: 11168428.
6. McLean, R. J. C., D. Beauchemin, and T. J. Beveridge. "Influence of Oxidation State on Iron Binding by *Bacillus licheniformis* Capsule." *Appl. Environ. Microbiol.* 58 (1992): 405–408. PubMed: 1539987.
7. McLean, R. J. C., et al. "Metal-Binding Characteristics of the Gamma-Glutamyl Capsular Polymer of *Bacillus licheniformis* ATCC 9945." *Appl. Environ. Microbiol.* 56 (1990): 3671–3677. PubMed: 16348371.
8. Chin, T., et al. "Synthesis of Teichoic Acids. VII. Synthesis of Teichoic Acids During Spore Germination." *J. Bacteriol.* 95 (1968): 2044–2050. PubMed: 4970221.

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