

# Product Information Sheet for NR-52267

## ***Bacillus paralicheniformis*, Strain NRS 712**

### **Catalog No. NR-52267**

(Derived from ATCC® 9945™)

**For research use only. Not for use in humans.**

#### **Contributor:**

ATCC®

#### **Manufacturer:**

BEI Resources

#### **Product Description:**

Bacteria Classification: *Bacillaceae*, *Bacillus*

Species: *Bacillus paralicheniformis*

Strain: NRS 712

Original Source: *Bacillus paralicheniformis* (*B. paralicheniformis*), strain NRS 712 was isolated in 1938 from flour.<sup>1</sup>

Comments: *B. paralicheniformis*, strain NRS 712 was deposited to ATCC® in 1945 by Dr. Nathan R. Smith. This strain reportedly produces D-glutamic acid polypeptide.<sup>2</sup> *B. paralicheniformis*, strain NRS was previously classified *Bacillus licheniformis*; however, in-house sequencing and digital DNA-DNA Hybridization (dDDH) data has identified this strain as *Bacillus paralicheniformis*.

*B. paralicheniformis* is a Gram-positive, spore-forming, facultative anaerobic bacilli, first identified in fermented soybean foods.<sup>3</sup> It is used in the biotechnology industry for manufacturing numerous products, including enzymes and antibiotics, and is a potential food waste bioreducer.<sup>4,5</sup>

#### **Material Provided:**

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

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

#### **Packaging/Storage:**

NR-52267 was packaged aseptically in 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 or Tryptic Soy broth or equivalent

Nutrient agar or Tryptic Soy 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 tube, slant and/or plate at 37°C for 1 day.

#### **Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Bacillus paralicheniformis*, Strain NRS 712, NR-52267."

#### **Biosafety Level: 1**

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. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see [www.cdc.gov/biosafety/publications/bmbl5/index.htm](http://www.cdc.gov/biosafety/publications/bmbl5/index.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.
3. Dunlap, C. A., et al. "*Bacillus paralicheniformis* sp. nov., Isolated from Fermented Soybean Paste." Int. J. Syst. Evol. Microbiol. 65 (2015): 3487-3492. PubMed: 26296568.
4. Du, Y., et al. "Comparative Genomic Analysis of *Bacillus paralicheniformis* MDJK30 with Its Closely Related Species Reveals an Evolutionary Relationship Between *B. paralicheniformis* and *B. licheniformis*." BMC Genomics 20 (2019): 283. PubMed: 30975079.
5. Roslan, M. A. M., et al. "Enhancing Food Waste Biodegradation Rate in a Food Waste Bioreactor with the Synergistic Action of Hydrolase-Producing *Bacillus paralicheniformis* GRA2 and *Bacillus velezensis* TAP5 Co-Culture Inoculation." Saudi J. Biol. Sci. 28 (20231): 3001-3012. PubMed: 34012331.

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