

Yersinia enterocolitica* subsp. *enterocolitica

Catalog No. NR-206

(Derived from ATCC® 27739™)

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Contributor:

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Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Yersinia*

Species: *Yersinia enterocolitica* subsp. *enterocolitica*

Biotype/Biovar: 2

Serotype/Serovar: O:8

Original Source:^{1,2} Isolated in 1973 from stream water by C. Francis Varga, M.D.

Comments: This isolate of *Yersinia enterocolitica* (*Y. enterocolitica*) subsp. *enterocolitica* was isolated from stream water which infected a human patient. A blood isolate from this patient is referred to as *Y. enterocolitica* subsp. *enterocolitica*, strain WA (ATCC® 27729™; BEI Resources NR-205). Strain WA and the stream water isolate belong to the same serotype and lysogenic group.² This stream water isolate was deposited at ATCC® in 1973 by Dr. Philip B. Carter of the Trudeau Institute, Inc., Seranac Lake, New York.

Y. enterocolitica subsp. *enterocolitica* is a significant food-borne enteropathogen which causes gastroenteritis. *Y. enterocolitica* subsp. *enterocolitica* is an extremely heterogeneous species, encompassing six biotypes and currently more than 50 serogroups, not all of which can cause disease.³ It is of particular concern to the food industry because it is a psychrotrophic pathogen able to proliferate at temperatures approaching 0°C.

Y. enterocolitica subsp. *enterocolitica* is a non-spore-forming, Gram-negative, rod-shaped coccobacillus. Virulence-associated genes are located on the chromosome and on the pYV (~ 64 to 75 kb) plasmid found in typical virulent strains of *Y. enterocolitica* subsp. *enterocolitica*.⁴ This plasmid encodes a type III secretion system involved in the delivery of virulence proteins that contribute to internalization into host cells.⁵

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X Tryptic Soy Broth supplemented with 10% glycerol.

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

Packaging/Storage:

NR-206 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 Tryptic Soy Broth

Tryptic Soy Agar or Sheep Blood Agar

Incubation:

Temperature:⁶ 26°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 26°C for 24–48 hours.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Yersinia enterocolitica* subsp. *enterocolitica*, NR-206.”

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/bmbl5/bmbl5toc.htm.

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References:

1. Keet, E. E. "Yersinia enterocolitica Septicemia. Source of Infection and Incubation Period Identified." N.Y. State J. Med. 74 (1974): 2226–2230. PubMed: 4530913.
2. Carter, P. B., C. F. Varga, and E. E. Keet. "New Strain of Yersinia enterocolitica Pathogenic for Rodents." Appl. Microbiol. 26 (1973): 1016–1018. PubMed: 4588191.
3. Viridi, J. S. and P. Sachdeva. "Molecular Heterogeneity in Yersinia enterocolitica and 'Y. enterocolitica-Like' Species – Implications for Epidemiology, Typing and Taxonomy." FEMS Immunol. Med. Microbiol. 45 (2005): 1–10. PubMed: 15985218.
4. Bottone, E. J. "Yersinia enterocolitica: The Charisma Continues." Clin. Microbiol. Rev. 10 (1997): 257–276. PubMed: 9105754.
5. Snellings, N. J., M. Popek, and L. E. Lindler. "Complete DNA Sequence of Yersinia enterocolitica Serotype O:8 Low-Calcium-Response Plasmid Reveals a New Virulence Plasmid-Associated Replicon." Infect. Immun. 69 (2001): 4627–4638. PubMed: 11402007.
6. Chu, M. C. Laboratory Manual of Plague Diagnostic Tests. Centers for Disease Control and Prevention, Atlanta, 2000.

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