

### ***Salmonella enterica* subsp. *enterica*, 2004 Pennsylvania Tomato Outbreak, Serovar Muenchen, Isolate 6**

**Catalog No. NR-4316**

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

**Contributor:**

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**Product Description:**

Bacteria Classification: *Enterobacteriaceae*, *Salmonella*

Species: *Salmonella enterica*

Subspecies: *Salmonella enterica* subsp. *enterica*<sup>1,2</sup>

Serogroup: C2-3

Serovar: Muenchen

Isolate: 6

Original Source: Human stool from a patient with diarrhea during the 2004 *Salmonella* outbreak in Pennsylvania

Comments: The 2004 *Salmonella* outbreak was linked to the consumption of Roma tomatoes from deli counters of a chain of 302 gas station convenience stores in Pennsylvania and four nearby states. Multiple serotypes of *Salmonella enterica* were implicated.<sup>3,4</sup>

*Salmonella enterica* (*S. enterica*) are Gram-negative, rod-shaped, flagellated bacteria. The species is divided into six subspecies (I, II, IIIa, IIIb, IV, VI) where only subspecies I, subsp. *enterica*, is considered of clinical relevance. Salmonellosis (non-typhoidal), due to the greater than 1500 serovars of *S. enterica* subsp. *enterica*, is one of the most common food-borne diseases with an estimated 2 million cases that occur in the United States every year.<sup>5</sup> Pathogenicity results from a variety of virulence factors found in plasmids, prophages and five pathogenicity islands which allow these organisms to colonize and infect host organisms.<sup>6</sup>

*S. enterica* subsp. *enterica* serovar Muenchen (formerly *Salmonella muenchen*) is found in domestic and wild animals and is generally spread to humans via consumption of contaminated water or food resulting in gastroenteritis.

**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 purify prior to initiating work.

**Packaging/Storage:**

NR-4316 was packaged aseptically, in screw-capped plastic cryovials. The product is provided frozen and should be

stored at -70°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:

Tryptic Soy Broth or equivalent

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 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: *Salmonella enterica* subsp. *enterica*, 2004 Pennsylvania Tomato Outbreak, Serovar Muenchen, Isolate 6, NR-4316."

**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](http://www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm).

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### References:

1. Judicial Commission of the International Committee on Systematics of Prokaryotes. "The Type Species of the Genus *Salmonella* Lignierres 1900 Is *Salmonella enterica* (ex Kauffmann and Edwards 1952) Le Minor and Popoff 1987, with the Type Strain LT2<sup>T</sup>, and Conservation of the Epithet *enterica* in *Salmonella enterica* over All Earlier Epithets that May Be Applied to This Species. Opinion 80." Int. J. Syst. Evol. Microbiol. 55 (2005): 519-520. PubMed: 15653929.
2. Tindall, B. J., et al. "Nomenclature and Taxonomy of the Genus *Salmonella*." Int. J. Syst. Evol. Microbiol. 55 (2005): 521-524. PubMed: 15653930.
3. Sandt, C. H., et al. "The Key Role of Pulsed-Field Gel Electrophoresis in Investigation of a Large Multiserotype and Multistate Food-Borne Outbreak of *Salmonella* Infections Centered in Pennsylvania." J. Clin. Microbiol. 44 (2006): 3208-3212. PubMed: 16954249.
4. Centers for Disease Control and Prevention (CDC). "Outbreaks of *Salmonella* Infections Associated with Eating Roma Tomatoes--United States and Canada, 2004." Morb. Mortal. Wkly. Rep. 54 (2005): 325-328. PubMed: 15815562.
5. Altekruze, S. F., M. L. Cohen, and D. L. Swerdlow. "Emerging Foodborne Diseases." Emerg. Infect. Dis. 3 (1997): 285-293. PubMed: 9284372.
6. Lavigne, J. P. and A. B. Blanc-Potard. "Molecular Evolution of *Salmonella enterica* Serovar Typhimurium and Pathogenic *Escherichia coli*: From Pathogenesis to Therapeutics." Infect. Genet. Evol. 8 (2008): 217-226. PubMed: 18226587.

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