

Salmonella enterica subsp. enterica, Strain DT4 (LT2)

Catalog No. NR-13554

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^{1,2}

Serotype: B

Serovar: Typhimurium

Type Strain: DT4 (LT2)

Serovar: Typhimurium

Original Source: Salmonella enterica (S. enterica) subsp. enterica serovar Typhimurium, strain DT4 (LT2) was isolated from a chicken in India in the 1940s by Lilleengen and typed based on phage sensitivity.³

Comments: The complete genome for S. enterica subsp. enterica serovar Typhimurium, strain DT4 (LT2) has been sequenced (GenBank: AE006468) and is known to contain a plasmid, pSLT (GenBank: AE006471), that encodes supplementary virulence factors.⁴

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.⁵ 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.^{6,7}

S. enterica subsp. enterica serovar Typhimurium (formerly Salmonella typhimurium) is a major cause of gastroenteritis. These bacteria are host generalists that occur in humans and many other mammals. Septic shock resulting in part from lipopolysaccharide (LPS) is a primary complication associated with serovar Typhimurium infection.⁸ Due to its similarity to the clinical and pathological effects in humans, calves are currently used as an animal model for human enterocolitis caused by this serotype.⁹ Additionally, this serovar causes typhoid-like disease in mice and is used as a mouse model of human typhoid fever.⁴

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-13554 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:

Tryptic Soy Broth or LB Broth

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, Strain DT4 (LT2), NR-13554."

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:

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3. Lilleengen, K. "Typing *Salmonella typhimurium* by Means of Bacteriophage." Acta Pathol. Microbiol. Scand. Suppl. 77 (1948): 11-125.
4. McClelland, M., et al. "Complete Genome Sequence of *Salmonella enterica* Serovar Typhimurium LT2." Nature 413 (2001): 852-856. PubMed: 11677609.
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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