

# Product Information Sheet for NR-4345

## ***Salmonella enterica* subsp. *enterica*, Strain LS1052**

### **Catalog No. NR-4345**

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

#### **Contributor:**

National Institute of Allergy and Infectious Diseases, National Institutes of Health

#### **Manufacturer:**

BEI Resources

#### **Product Description:**

Bacteria Classification: *Enterobacteriaceae*, *Salmonella*

Species: *Salmonella enterica*

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

Serogroup: B

Serovar: Typhimurium

Strain: LS1052

Original Source: *Salmonella enterica* (*S. enterica*) subsp. *enterica*, strain LS1052 is a derivative of strain 14028.<sup>3</sup> Strain 14028 (also referred to as CDC 6516-60) was isolated from chickens and deposited to the ATCC® in 1960.

Comments: *S. enterica* subsp. *enterica*, strain LS1052 expresses STM2777, tagged with 3 X FLAG epitopes.<sup>3</sup> STM2777 is a TonB-dependent siderophore receptor protein, IroN.<sup>3</sup> Additional information is available at the [Resource Center for Biodefense Proteomics Research \(BPRC\)](#).

*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>4</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>5,6</sup>

*S. enterica* subsp. *enterica* serovar Typhimurium (formerly *Salmonella typhimurium*) is a major cause of gastroenteritis. Septic shock resulting in part from lipopolysaccharide (LPS) is a primary complication associated with serovar Typhimurium infection.<sup>7</sup> 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.<sup>8</sup> Additionally, this serovar causes typhoid-like disease in mice and is used as a mouse model of human typhoid fever.<sup>9</sup>

The complete genome sequence of several strains of *S. enterica* subsp. *enterica* serovar Typhimurium are in progress [strain DT104 (Definitive Type 104; a multidrug resistant strain), strain SL1344 (a genetically marked subline

of a calf-virulent isolate), and strain TR7095 (a wild-type strain)] and strain LT2 has been completed (GenBank: AE006468).<sup>9</sup>

#### **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-4345 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 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, slants or plates at 37°C for 24 hours.

#### **Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Salmonella enterica* subsp. *enterica*, Strain LS1052, NR-4345."

#### **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](http://www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm).

#### **Disclaimers:**

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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. Shi, L., et al. "Proteomic Analysis of the *Salmonella enterica* Serovar Typhimurium Isolated from RAW 264.7 Macrophages: Identification of a Novel Protein that Contributes to the Replication of Serovar Typhimurium Inside Macrophages." *J. Biol. Chem.* 281 (2006): 29131-29140. PubMed: 16893888.
4. Altekruze, S. F., M. L. Cohen and D. L. Swerdlow. "Emerging Foodborne Diseases." *Emerg. Infect. Dis.* 3 (1997): 285-293. PubMed: 9284372.
5. 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.
6. Parsons, D. A. and F. Heffron. "*sciS*, an *icmF* Homolog in *Salmonella enterica* Serovar Typhimurium, Limits Intracellular Replication and Decreases Virulence." *Infect. Immun.* 73 (2005): 4338-4345. PubMed: 15972528.
7. Sha, J., et al. "The Two Murein Lipoproteins of *Salmonella enterica* Serovar Typhimurium Contribute to the Virulence of the Organism." *Infect. Immun.* 72

(2004): 3987-4003. PubMed: 15213144.

8. Zhang, S., et al. "The *Salmonella enterica* Serotype Typhimurium Effector Proteins SipA, SopA, SopB, SopD, and SopE2 Act in Concert to Induce Diarrhea in Calves." *Infect. Immun.* 70 (2002): 3843-3855. PubMed: 12065528.
9. McClelland, M., et al. "Complete Genome Sequence of *Salmonella enterica* Serovar Typhimurium LT2." *Nature* 413 (2001): 852-856. PubMed: 11677609. GenBank: AE006468.

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