

Salmonella enterica subsp. enterica, Strain S5682 (Serovar Typhimurium)

Catalog No. NR-22068

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: Enterobacteriaceae, Salmonella

Species: Salmonella enterica

Subspecies: Salmonella enterica subsp. enterica^{1,2}

Serogroup: B

Serovar: Typhimurium

Strain: S5682

Original Source: Salmonella enterica (S. enterica) subsp. enterica, strain S5682 was isolated in 2000 from cattle feces in Washington State, USA.³

Comments: S. enterica subsp. enterica, strain S5682 is a multi-drug resistant strain that is reported to be resistant to ampicillin, chloramphenicol, kanamycin, sulfa-trimethoprim, triple-sulfa (a combination of sulfadiazine, sulfamethazine, and sulfamerazine), streptomycin, tetracycline and ceftazidime. Strain S5682 is reported to contain an approximately 150 kilobase pair bla_{CMY-2} plasmid.^{3,4} The gene sequence of the bla_{CMY-2} gene has 100% homology to GenBank: [AF420597](#).^{3,5}

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 two million cases that occur in the United States every year.⁶ 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.^{7,8}

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.⁹ 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.¹⁰ Additionally, this serovar causes typhoid-like disease in mice and is used as a mouse model of human typhoid fever.¹¹

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).¹⁰

Material Provided:

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

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

Packaging/Storage:

NR-22068 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 Nutrient broth or equivalent

Tryptic Soy agar with 5% defibrinated sheep blood or Nutrient 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 BEI Resources, NIAID, NIH: Salmonella enterica subsp. enterica, Strain S5682 (Serovar Typhimurium), NR-22068."

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, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

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