

## ***Salmonella enterica* subsp. *enterica*, Strain 14028s $\Delta$ phoQ (Serovar Typhimurium)**

**Catalog No. NR-40554**

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

### **Contributor:**

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### **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: 14028s  $\Delta$ phoQ<sup>3</sup> (STM14:1408/09, STM:1230/1)

Original Source: *Salmonella enterica* (*S. enterica*) subsp. *enterica*, strain 14028s  $\Delta$ phoQ (serovar Typhimurium) was derived from strain 14028s (strain 14028s was originally known as strain 14028, however, a variant of the original strain with a rough colony morphology was designated 14028r and the original smooth strain was renamed 14028s). Strain 14028 is a descendent of strain CDC 6516-60 which was isolated from pools of hearts and livers of 4-week-old chickens.<sup>4</sup>

Comments: The  $\Delta$ phoQ mutant of strain 14028s was produced by creating a PCR product with *phoQ* homologous sequences at the 5' and 3' ends of a linear fragment containing a kanamycin resistance cassette. *S. enterica* subsp. *enterica*, strain 14028s was transformed, and insertion of the *kan* cassette in place of *phoQ* was confirmed by PCR. The final non-polar deletions were constructed by elimination of the *kan* cassette.<sup>5</sup> The complete genome (GenBank: [CP001363.1](#)) and plasmid (GenBank: [CP001362.1](#)) sequences are available for strain 14028s.

*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.<sup>6</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>7</sup>

*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.<sup>8</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>9</sup> Additionally, this serovar causes typhoid-like disease in mice and is used as a mouse model of human typhoid fever.<sup>4</sup>

### **Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X LB broth (supplemented with 1% Bacto-tryptone, 0.5% yeast extract and 1% sodium chloride) with 10% glycerol.

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

### **Packaging/Storage:**

NR-40554 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 tube, slant and/or 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 14028s  $\Delta$ phoQ (Serovar Typhimurium), NR-40554."

### **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](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

### **Disclaimers:**

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#### References:

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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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