

***Escherichia coli*, Strain 493/89**

Catalog No. NR-20446

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Escherichia*

Species: *Escherichia coli*

Strain: 493/89¹

Serotype: O157:H-¹

Clade: 1²

Original Source: *Escherichia coli* (*E. coli*), strain 493/89, was isolated in 1989 from a human patient with hemolytic uremic syndrome (HUS) treated in a pediatric center in Germany.^{1,2}

Comments: *E. coli*, strain 493/89 is a sorbitol-fermenting (SF) enterohemorrhagic *E. coli* (EHEC) and its genome encodes for the Shiga-like type 2 toxin (Stx2).^{1,3,4} The complete genome of *E. coli*, strain 493/89 is available (GenBank: [AETY00000000](https://www.ncbi.nlm.nih.gov/nuccore/AETY00000000)).

E. coli is a Gram-negative, rod-shaped bacterium commonly found in the gut flora of warm-blooded animals and is the primary facultative anaerobe of the human gastrointestinal tract. While most *E. coli* strains are harmless and are an important part of a healthy intestinal tract, some serotypes are pathogenic, causing diarrhea, urinary tract infections, respiratory illness, pneumonia, or other illnesses in their host.⁵⁻⁸ Pathogenic *E. coli* may be transmitted through contaminated food or water, or through contact with infected persons or animals. The six pathotypes associated with diarrhea and collectively referred to as diarrheagenic *E. coli* are: Shiga toxin-producing *E. coli* [STEC; also referred to as Verocytotoxin-producing *E. coli* (VTEC) or enterohemorrhagic *E. coli* (EHEC)]⁸, enterotoxigenic *E. coli* (ETEC)⁹, enteropathogenic *E. coli* (EPEC)¹⁰, enteroaggregative *E. coli* (EAEC)¹¹, enteroinvasive *E. coli* (EIEC) and diffusely adherent *E. coli* (DAEC).¹²

Many EHEC strains encode potent toxins, similar to those of *Shigella dysenteriae*, which can cause severe intestinal, kidney, and central nervous system disease. SF EHEC O157:H- strains have emerged as causes of diarrhea, hemorrhagic colitis and the hemolytic-uremic syndrome (HUS) in continental Europe.^{13,14}

SF EHEC O157:H- strain 493/89 carries a single plasmid, pSFO157 (>120,000 base pairs; GenBank: [AF401292.1](https://www.ncbi.nlm.nih.gov/nuccore/AF401292.1)).¹⁵

Material Provided:

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

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

Packaging/Storage:

NR-20446 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 or Nutrient agar or Tryptic Soy agar with 5% defibrinated sheep blood 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: *Escherichia coli*, Strain 493/89, NR-20446.”

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/bmb15/index.htm.

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