

***Escherichia coli*, Strain JAC719**

Catalog No. NR-50497

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Contributor:

James B. Kaper, Associate Dean, Department of Microbiology and Immunology, University of Maryland, Baltimore, Maryland, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Escherichia*

Species: *Escherichia coli*

Strain: JAC719

Serotype: O127:H6

Original Source: *Escherichia coli* (*E. coli*), strain JAC719 is a translocated intimin receptor (*tir*) insertion mutant of the wild type strain E2348/69.¹ Strain E2348/69 was isolated in 1969 during an outbreak of diarrhea in an infant nursery in Taunton, England.²⁻⁴

Comments: Mutagenesis occurred through the insertion of a chloramphenicol-resistance gene (*cat*) from pACYC184 into *tir*.¹ *tir* encodes for a receptor protein, Tir, that is inserted into the host membrane and binds to the adhesion protein intimin. Both Tir and intimin are required for attachment of the bacterium to the host cell.¹

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. There are a number of pathogenic types of *E. coli* associated with diarrhea that are referred to as: enterohemorrhagic *E. coli* (EHEC) [also known as Shiga toxin-producing *E. coli* (STEC) or Verocytotoxin-producing *E. coli* (VTEC)]⁵, enterotoxigenic *E. coli* (ETEC)⁶, enteropathogenic *E. coli* (EPEC)⁷, enteroaggregative *E. coli* (EAEC)⁸, enteroinvasive *E. coli* (EIEC) and diffusely adherent *E. coli* (DAEC).⁹

Characteristic features of EPEC strains are induction of attaching and effacing (A/E) lesions on intestinal epithelial cells, lack of enterotoxins and lack of shigella-like invasiveness. The ability to induce A/E lesions is encoded by genes located on a 35-kb pathogenicity island (PAI) called the locus of enterocyte effacement (LEE), which contains the genes encoding *eae* (intimin), a type III secretion system, a number of secreted proteins (ESP), and the translocated intimin receptor (Tir).⁷

EPEC strain E2348/69 (serotype O127:H6) has been used worldwide as a prototype strain to study EPEC biology, genetics, and virulence. The complete genome sequence of strain E2348/69 (GenBank: [NC_011601](https://www.ncbi.nlm.nih.gov/nuclink/NC_011601)) has enabled analysis of over 400 known/predicted effector sequences and identified only 21 putative effectors, providing a clear picture of the core LEE and non-LEE effector genes.³

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 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-50497 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 1 day.

Citation:

Acknowledgment for publications should read "The following reagent was provided by Dr. Kaper, for distribution by BEI Resources, NIAID, NIH: *Escherichia coli*, Strain JAC719, NR-50497."

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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References:

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