Escherichia coli, Strain CVD452

Catalog No. NR-50495

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Manufacturer:
BEI Resources

Product Description:
Bacteria Classification: *Enterobacteriaceae, Escherichia*
Species: *Escherichia coli*
Strain: CVD452
Serotype: O127:H6
Original Source: *Escherichia coli (E. coli)*, strain CVD452 is a type III secretion system translocator gene *(escN)* 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 an 850 base-pair cassette carrying a kanamycin-resistance gene (*aphA3*) from pUC18K into *escN*.[1,5] *escN* encodes the type III secretion system ATPase, EscN. Disruption of this gene eliminates secretion of proteins required for the attaching and effacing lesion formation that is characteristic of enteropathogenic *E. coli* (EPEC) strains.[1,6]

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)][7], enterotoxigenic *E. coli* (ETEC)[8], enteropathogenic *E. coli* (EPEC)[9], enteroaggregative *E. coli* (EAEC)[10], enteroinvasive *E. coli* (EIEC) and diffusely adherent *E. coli* (DAEC).[11]

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).[9]

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) 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-50495 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 CVD452, NR-50495."

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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