

### ***Escherichia coli*, Strain MDL 4444**

**Catalog No. NR-4388**

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

#### **Contributor:**

Dr. J. Michael Janda, Chief, Microbial Diseases Laboratory,  
Division of Communicable Disease Control, California  
Department of Health Services, Richmond, California

#### **Product Description:**

Bacteria Classification: *Enterobacteriaceae*, *Escherichia*

Species: *Escherichia coli*

Strain: MDL 4444

Serotype: O157:H7

Original Source: Human clinical sample isolated at Mercy  
Medical Center, California in August 2006, due to an  
outbreak linked to spinach consumption

*Escherichia coli* (*E. coli*) is a Gram-negative, rod-shaped bacterium which occurs singly or in pairs. It is a major facultative inhabitant of the large intestine. Many enterohemorrhagic *E. coli* (EHEC) strains encode potent toxins, similar to those of *Shigella dysenteriae*, which can cause severe intestinal, kidney and central nervous system disease.

*E. coli*, strain MDL 4444 is known to react with the O157 antigen and thus, it is probable that it carries the pO157 plasmid. Additionally, this strain may carry the genes for hemolysin A (*hlyA*), Shiga toxin 2 (*stx2*) and intimin (*eaeA*) that are found in most EHEC strains.<sup>1</sup>

#### **Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X Tryptic Soy Broth supplemented with 10% glycerol.

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

#### **Packaging/Storage:**

NR-4388 was packaged aseptically, in screw-capped plastic cryovials. The product is provided frozen and should be stored at -70°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 equivalent

Tryptic Soy Agar or equivalent

Incubation:

Temperature: 35–37°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 Tryptic Soy Broth.
3. Use several drops of the suspension to inoculate a Tryptic Soy Agar slant and/or plate.
4. Incubate the slant and/or plate at 35–37°C for 24 hours.

#### **Citation:**

Acknowledgment for publications should read “The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Escherichia coli*, Strain MDL 4444, NR-4388.”

#### **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, 2007; see [www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm](http://www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm).

#### **Disclaimers:**

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at [www.beiresources.org](http://www.beiresources.org).

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government make any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

#### **Use Restrictions:**

**This material is distributed for internal research, non-commercial purposes only.** This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or

its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

### References:

1. Jay, M. T., et al. "*Escherichia coli* O157:H7 in Feral Swine near Spinach Fields and Cattle, Central California Coast." Emerg. Infect. Dis. 13 (2007): 1908–1911. PubMed: 18258044.
2. Riley, L. W., et al. "Hemorrhagic Colitis Associated with a Rare *Escherichia coli* Serotype." N. Engl. J. Med. 308 (1983): 681–685. PubMed: 6338386.
3. Escobar-Páramo, P., et al. "A Specific Genetic Background Is Required for Acquisition and Expression of Virulence Factors in *Escherichia coli*." Mol. Biol. Evol. 21 (2004): 1085–1094. PubMed: 15014151.

ATCC® is a trademark of the American Type Culture Collection.

