

Escherichia coli* K-12, Strain MG1655*Catalog No. NR-2653**

(Derived from ATCC® 700926™)

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

Guy Plunkett, III, Ph.D., Laboratory of Genetics, University of Wisconsin-Madison, Madison, WI

Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Escherichia*

Species: *Escherichia coli* (*E. coli*) K12

Strain: MG1655

Serotype: OR:H48:K-

Original Source:¹ A stab-culture descendant of the original *E. coli* K-12 isolate which was obtained from a stool sample of a diphtheria patient in Palo Alto, California in 1922 was deposited by Dr. G. Plunkett in 2000.

Comment: The complete genomic sequence of *E. coli* K-12, strain MG1655 has been determined (4,639,675 bp; GenBank: U00096).^{2,3}

E. coli K-12 is a nonpathogenic rod-shaped facultative anaerobe that colonizes the lower gut of animals but also survives when released into the environment. It is generally confined to the intestinal lumen but may cause infection in a debilitated or immunosuppressed host or when the bacteria is introduced to other tissues. *E. coli* K-12, strain MG1655 has been maintained as a laboratory strain with minimal genetic manipulation, except for removal of the bacteriophage lambda and F plasmid by ultraviolet light and acridine orange, respectively.²

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X Trypticase 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-2653 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:

Trypticase Soy Broth or equivalent

Trypticase Soy 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 Trypticase Soy Broth.
3. Use several drops of the suspension to inoculate a Trypticase Soy Agar slant and/or plate.
4. Incubate the slant and/or plate at 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* K-12, Strain MG1655, NR-2653."

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.

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.

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. Bachmann, B. J. "Derivations and Genotypes of Some Mutant Derivatives of *Escherichia coli* K-12." In: *Escherichia coli* and *Salmonella typhimurium*: Cellular and Molecular Biology. Eds. Neidhardt, F. C., et al. 2 vols. Washington, DC: ASM Press, 1996. 2460–2488.
2. Blattner, F. R., et al. "The Complete Genome Sequence of *Escherichia coli* K-12." Science 277 (1997): 1453–1474. PubMed: 9278503. GenBank: NC_000913.
3. Hayashi, K., et al. "Highly Accurate Genome Sequences of *Escherichia coli* K-12 Strains MG1655 and W3110." Mol. Syst. Biol. 2 (2006): 1–5. PubMed: 16738553.
4. Durant, L., et al. "Identification of Candidates for a Subunit Vaccine against Extraintestinal Pathogenic *Escherichia coli*." Infect. Immun. 75 (2007): 1916–25. PubMed: 17145948.
5. Lloyd, A. L., D. A. Rasko, and H. L. Mobley. "Defining Genomic Islands and Uropathogen-Specific Genes in Uropathogenic *Escherichia coli*." J. Bacteriol. 189 (2007): 3532–3546. PubMed: 17351047.
6. Feher, T., et al. "Characterization of *cycA* Mutants of *Escherichia coli*. An Assay for Measuring *In Vivo* Mutation Rates." Mutat. Res. 595 (2006): 184–190. PubMed: 16376388.
7. Fong, S. S., A. R. Joyce, and B. O. Palsson. "Parallel Adaptive Evolution Cultures of *Escherichia coli* Lead to Convergent Growth Phenotypes with Different Gene Expression States." Genome Res. 15 (2005): 1365–1372. PubMed: 16204189.
8. Corradini, M. G. and M. Peleg. "Demonstration of the Applicability of the Weibull-Log-Logistic Survival Model to the Isothermal and Nonisothermal Inactivation of *Escherichia coli* K-12 MG1655." J. Food Prot. 67 (2004): 2617–2621. PubMed: 15553651.
9. Miranda, R. L., et al. "Glycolytic and Gluconeogenic Growth of *Escherichia coli* O157:H7 (EDL933) and *E. coli* K-12 (MG1655) in the Mouse Intestine." Infect. Immun. 72 (2004): 1666–1676. PubMed: 14977974.
10. Ohnishi, M., et al. "Comparative Analysis of the Whole Set of rRNA Operons between an Enterohemorrhagic *Escherichia coli* O157:H7 Sakai Strain and an *Escherichia coli* K-12 Strain MG1655." Syst. Appl. Microbiol. 23 (2000): 315–324. PubMed: 11108008.

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

