

***Enterococcus faecium*, Strain U0317**

Catalog No. NR-28982

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Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Enterococcaceae*, *Enterococcus*

Species: *Enterococcus faecium*

Strain: U0317

Original Source: *Enterococcus faecium* (*E. faecium*), strain U0317 is an infectious clinical isolate collected from a hospitalized patient suffering from a urinary tract infection in the Netherlands in 2005.¹

Comments: *E. faecium*, strain U0317 contains point mutations in the *gyrA* gene that confer resistance to ampicillin, and in the *parC* and *pbp5* genes, which confer resistance to ciprofloxacin.¹ *E. faecium*, strain U0317 contains intact *esp*, *hyl* and *acm* virulence genes.¹ *E. faecium*, strain U0317 is assigned to Clonal Complex 17 (CC17) and is classified as DNA sequence type 78 based on multi-locus sequence typing of seven housekeeping genes. The complete genome sequence of *E. faecium*, strain U0317 is available (GenBank: [ABSW00000000](#)).

E. faecium is a Gram-positive, facultative, anaerobic coccus that is a commensal inhabitant of the gastrointestinal tract of both humans and animals.¹⁻³ *E. faecium* is an emerging and challenging nosocomial pathogen due to its inherent hardiness and ability to develop antibiotic resistance.^{1,3} Its large open pan-genome allows for horizontal gene transfer between *E. faecium* and other pathogenic and non-pathogenic bacteria to adapt to changing environments.^{1,4} The large majority of strains isolated from nosocomial infections have been classified as CC17, with a distinct genetic lineage characterized by ampicillin resistance and a pathogenicity island carrying the *esp* gene, which is known to contribute virulence in an animal model.^{1,4,5} Two other virulence genes, *hyl* and *acm*, have been identified.¹

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-28982 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 Brain Heart Infusion broth or equivalent
Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or Brain Heart Infusion 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 broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate tube, slant and/or plate for 1 day.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Enterococcus faecium*, Strain U0317, NR-28982."

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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References:

1. van Schaik, W., et al. "Pyrosequencing-Based Comparative Genome Analysis of the Nosocomial Pathogen *Enterococcus faecium* and Identification of a Large Transferable Pathogenicity Island." BMC Genomics 11 (2010): 239. PubMed: 20398277.
2. Schleifer, K. H. and R. Kilpper-Bälz. "Transfer of *Streptococcus faecalis* and *Streptococcus faecium* to the Genus *Enterococcus* nom. rev. as *Enterococcus faecalis* comb. nov. and *Enterococcus faecium* comb. nov." Int. J. Syst. Bacteriol. 34 (1984): 31-34.
3. Arias, C. A. and B. E. Murray. "The Rise of the *Enterococcus*: Beyond Vancomycin Resistance." Nat. Rev. Microbiol. 10 (2012): 266-278. PubMed: 22421879.
4. Heikens, E., et al. "Identification of a Novel Genomic Island Specific to Hospital-Acquired Clonal Complex 17 *Enterococcus faecium* Isolates." Appl. Environ. Microbiol. 74 (2008): 7094-7097. PubMed: 18836023.
5. Willems, R. J., et al. "Global Spread of Vancomycin-Resistant *Enterococcus faecium* from Distinct Nosocomial Genetic Complex." Emerg. Infect. Dis. 11 (2010): 821-828. PubMed: 15963275.
6. Maxson, T., et. al. "Rapid Antibiotic Susceptibility Testing from Blood Culture Bottles with Species Agnostic Real-Time Polymerase Chain Reaction." PLoS One 13 (2018): e0209042. PubMed: 26611826.

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