

***Peptoclostridium difficile*, Strain CD196**

**Catalog No. NR-43539**

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

**Contributor:**

David M. Aronoff, M.D., Associate Professor, Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan, USA

**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Peptostreptococcaceae*,  
*Peptoclostridium*

Species: *Peptoclostridium difficile* (also referred to as *Clostridium difficile*)<sup>1</sup>

Strain: CD196

Original Source: *Peptoclostridium difficile* (*P. difficile*), strain CD196 was isolated in March 2010 from the stool of a human patient diagnosed with an acute *Clostridium difficile* infection in Ann Arbor, Michigan, USA.<sup>2</sup>

Comments: *P. difficile*, strain CD196 was deposited as a toxigenic strain and is part of a genome sequencing project at the [Institute for Genome Sciences](#) at the University of Maryland.<sup>2,3</sup> PCR analysis has shown the presence of *P. difficile* toxins in strain CD196.<sup>2</sup> The complete genome of *P. difficile*, strain CD196 is available (Gen Bank: [AVIE00000000](#)).

*P. difficile* is a Gram-positive, spore-forming, obligate anaerobe that commonly inhabits the intestinal tract of various mammalian species, reptiles and birds, and may also be found in the environment. Pathogenic strains of *P. difficile* produce a potent cytotoxin (toxin B) and in most cases an enterotoxin (toxin A).<sup>4</sup> It is the production of these toxins in the gut which ultimately leads to pseudomembranous colitis (PMC) and *Clostridium difficile* associated diarrhea (CDAD), which often occur as a complication of antibiotic therapy in elderly hospitalized patients.<sup>5</sup>

**Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in Modified Reinforced Clostridial medium supplemented with 10% glycerol.

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

**Packaging/Storage:**

NR-43539 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:

Modified Reinforced Clostridial medium or equivalent Tryptic Soy agar with 5% defibrinated sheep blood or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Anaerobic

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 24 to 72 hours.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Peptoclostridium difficile*, Strain CD196, NR-43539."

**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](http://www.cdc.gov/biosafety/publications/bmbl5/index.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 makes 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. Yutin, N. and M. Y. Galperin. "A Genomic Update on Clostridial Phylogeny: Gram-Negative Spore-Formers and Other Misplaced Clostridia." *Environ. Microbiol.* 15 (2013): 2631-2641. PubMed: 23834245.
2. Aronoff, D. M., Personal Communication.
3. Walk, S. T., D. M. Aronoff and V. B. Young. "Comparative Phylogenomics of *Clostridium difficile*." [Institute for Genome Sciences](http://gscid.igs.umaryland.edu/doc/whitepapers/comparative_phylogenomics_of_clostridium_difficile.pdf) at the University of Maryland.  
<[http://gscid.igs.umaryland.edu/doc/whitepapers/comparative\\_phylogenomics\\_of\\_clostridium\\_difficile.pdf](http://gscid.igs.umaryland.edu/doc/whitepapers/comparative_phylogenomics_of_clostridium_difficile.pdf)>
4. Rupnik, M., M. H. Wilcox and D. N. Gerding. "*Clostridium difficile* Infection: New Developments in Epidemiology and Pathogenesis." *Nat. Rev. Microbiol.* 7 (2009): 526-536. PubMed: 19528959.
5. Kelly, C. P. and J. T. LaMont. "*Clostridium difficile* - More Difficult than Ever." *N. Engl. J. Med.* 359 (2008): 1932-1940. PubMed: 18971494.
6. Marsh, J. W. "Counterpoint: Is *Clostridium difficile* a Food-borne Disease?" *Anaerobe* 21 (2013): 62-63. PubMed: 23528985.

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

