**Clostridium difficile, Isolate 20100502**

**Catalog No. NR-49277**

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

**Contributor:**
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**Manufacturer:**
BEI Resources

**Product Description:**

*Bacteria Classification:* Clostridiaceae, *Clostridium* (A taxonomy change to Peptostreptococcaceae, *Peptoclostridium* has been proposed).1

*Species:* *Clostridium difficile* (*Peptoclostridium difficile*)

*Isolate:* 20100502

*Original Source:* *Clostridium difficile* (*C. difficile*), isolate 20100502 was obtained from the stool of an older adult male patient with a community-associated (CA) *C. difficile* infection in Colorado, USA, in 2010.2

**Comments:** *C. difficile*, isolate 20100502 is part of the Emerging Infections Program - Clostridium difficile Surveillance Project at the Centers for Disease Control and Prevention.2,3 Isolates were selected to represent the diversity of strain types and geographical locations circulating in the U.S. during 2010-2011. Isolate 20100502 was deposited as PCR ribotype 019, North American pulsed-field gel electrophoresis 1 (NAP1), containing tcdA, tcdB and tcdC of the PaLoc operon, as well as the *C. difficile* binary toxin (CDT).2

*C. 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. *C. difficile* infection is the leading cause of gastroenteritis-associated death and has become the most common cause of healthcare-associated (HA) infections in the USA.3 Epidemic strains of *C. difficile* associated with severe disease are generally positive for CDT, contain an 18 base pair deletion in tcdC, are resistant to fluoroquinolones, have PCR ribotype 027 and pulse-field gel electrophoresis type NAP1, restriction endonuclease analysis (REA) type B1 and toxinoype III (CDT*, TcdA* and TcdB*).4 *C. difficile* produces a cytotoxin (TcdB) and an enterotoxin (TcdA) whose genes are part of the PaLoc operon. The operon also contains the tcdC gene which is a negative regulator of the tcdA and tcdB genes. The CDT is comprised of two parts encoded by cdtA (enzymatic component) and cdtB (binding component).4 The production of these toxins in the gut ultimately leads to pseudomembranous colitis (PMC) and *C. difficile* associated diarrhea (CDAD), which often occur as a complication of antibiotic therapy in elderly hospitalized patients.5

**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-49277 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: *Clostridium difficile*, Isolate 20100502, NR-49277." 

**Biosafety Level:** 2


**Disclaimers:**

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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

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References:
2. Limbago, B., Personal Communication.

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