**Clostridium difficile, Isolate 20100221**

**Catalog No. NR-49280**

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**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:** 20100221

**Original Source:** Clostridium difficile (C. difficile), isolate 20100221 was obtained from the stool of an elderly male patient with a healthcare-associated (HA) C. difficile infection in New York, USA, in 2010.²

**Comments:** C. difficile, isolate 20100221 is part of the Emerging Infections Program - Clostridium difficile Surveillance Project at the Centers for Disease Control and Prevention.²³ Isolates were selected to represent the diversity of strain types and geographical locations circulating in the U.S. during 2010-2011. Isolate 20100221 was deposited as PCR ribotype 027, North American pulsed-field gel electrophoresis type 1 (NAP1), containing tcdA, tcdB and tcdC (with 18 base pair deletion) 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 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 toxinotype 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-49280 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 into 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 20100221, NR-49280.”

**Biosafety Level:** 2


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

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