*Clostridium difficile*, Isolate 20110052

**Catalog No. NR-49281**

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

**Product Description:**

**Bacteria Classification:** Clostridium, *Clostridium* (A taxonomic change to *Peptostreptococcaceae*, *Peptoclostridium* has been proposed).  
**Species:** *Clostridium difficile* (*Peptoclostridium difficile*)  
**Isolate:** 20110052  
**Original Source:** *Clostridium difficile* (*C. difficile*), isolate 20110052 was obtained from the stool of an elderly male patient with a healthcare-associated (HA) *C. difficile* infection in northeastern USA in 2010.  
**Comments:** *C. difficile*, isolate 20110052 is part of the Emerging Infections Program - *Clostridium difficile* Surveillance Project at the Centers for Disease Control and Prevention.  
Isolates were selected to represent the diversity of strain types and geographical locations circulating in the U.S. during 2010-2011. Isolate 20110052 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).  

*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. 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*).  
*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 *cdaA* (enzymatic component) and *cdaB* (binding component). 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.

**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-49281 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 1 to 3 days.

**Citation:**

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Clostridium difficile*, Isolate 20110052, NR-49281."

**Biosafety Level: 2**


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

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