

***Clostridium difficile*, Strain 050-P50-2011**

Catalog No. HM-747

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Peptostreptococcaceae*, *Clostridium*

Species: *Clostridium difficile*

Strain: 050-P50-2011

Original Source: *Clostridium difficile* (*C. difficile*), strain 050-P50-2011 was isolated in January 2011 from the stool of a patient with diarrhea.¹

Comments: *C. difficile*, strain 050-P50-2011 ([HMP ID 1123](#)) is a reference genome for [The Human Microbiome Project](#) (HMP). HMP is an initiative to identify and characterize human microbial flora. The complete genome of *C. difficile*, strain 050-P50-2011 is currently being sequenced at the Genome Institute at [Washington University](#) (GenBank: [AGAB00000000](#)).

Note: HMP material is taxonomically classified by the depositor. Quality control of these materials is only performed to demonstrate that the material distributed by BEI Resources is identical to the deposited material.

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. Pathogenic strains of *C. difficile* produce a potent cytotoxin (toxin B) and in most cases an enterotoxin (toxin A).² It is the production of these toxins in the gut which ultimately leads to the disease pseudomembranous colitis (PMC) and *C. difficile* associated diarrhea (CDAD), which often occur as a complication of antibiotic therapy in elderly hospitalized patients.³

C. difficile, strain 050-P50-2011 tests positive for virulence toxin B by PCR and toxins A and B by enzyme immunoassay and Western blot analysis, is noncytotoxic in cell culture and mouse inoculation studies, is a spore-former, and did not induce P-MK2 signaling molecule in MAPKAP2 induction studies.^{1,4}

Material Provided:

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

Note: If homogeneity is required for your intended use,

please purify prior to initiating work.

Packaging/Storage:

HM-747 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 Broth ([ATCC medium 2107](#)) or equivalent

Tryptic Soy Agar (TSA) with 5% defibrinated sheep blood or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Anaerobic gas mixture (80% N₂:10% CO₂:10% H₂)

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 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH as part of the Human Microbiome Project: *Clostridium difficile*, Strain 050-P50-2011, HM-747."

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/bmbI5/index.htm.

Disclaimers:

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References:

1. L. D. Bobo, personal communication.
2. 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.
3. Kelly, C. P. and J. T. LaMont. "Clostridium difficile - More Difficult than Ever." *N. Engl. J. Med.* 359 (2008): 1932-1940. PubMed: 18971494.
4. [HMP ID 1123](#) (*Clostridium difficile*, strain 050-P50-2011)

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