



Product Sheet

# *Phytophthora borealis* (ATCC® MYA-4881™)

Please read this **FIRST**



## Intended Use

This product is intended for research use only. It is not intended for any animal or human therapeutic or diagnostic use.

## Citation of Strain

If use of this culture results in a scientific publication, it should be cited in that manuscript in the following manner: *Phytophthora borealis* (ATCC® MYA-4881™)

American Type Culture Collection  
PO Box 1549  
Manassas, VA 20108 USA  
[www.atcc.org](http://www.atcc.org)

800.638.6597 or 703.365.2700  
Fax: 703.365.2750  
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Or contact your local distributor

## Description

**Strain Designation:** AKWA58.1-0708 [CBS 132023]

### Product Description:

An ampoule containing mycelia-medium cubes suspended in cryoprotectant.

## Propagation

The information recommended in this section is to assist users in obtaining living culture(s) for their studies. The recommendation does not imply that the conditions or procedures provided below are optimum. Experienced researchers may initiate the growth of a culture in their own way.

ATCC® Medium 343: V8 juice agar

ATCC® Medium 1970: V8 rye agar

ATCC® Medium 321: Lima bean agar

ATCC® Medium 2232: YM medium with biotin 30 mcg/L and thiamine 600 mcg/L

## Growth Conditions

**Temperature:** 20°C to 22°C

**Atmosphere:** Typical aerobic

## Recommended Procedure

**Frozen ampoules** packed in dry ice should either be thawed immediately or stored in liquid nitrogen. If liquid nitrogen storage facilities are not available, frozen ampoules may be stored at or below -70°C for approximately one week. **Do not under any circumstance store frozen ampoules at refrigerator freezer temperatures (generally -20°C).** Storage of frozen material at this temperature will result in the death of the culture.

1. To thaw a frozen ampoule, place in a **25°C to 30°C** water bath, until just thawed (**approximately 5 minutes**). Immerse the ampoule just sufficient to cover the frozen material. Do not agitate the ampoule.
2. Immediately after thawing, wipe down ampoule with 70% ethanol and aseptically transfer 2-3 agar cubes of the content onto a plate or broth with medium recommended.
3. Incubate the inoculum/strain at the temperature and conditions recommended.
4. Inspect for growth of the inoculum/strain regularly. The sign of viability is noticeable typically after 3-4 days of incubation. However, the time necessary for significant growth will vary from strain to strain.

**Colony and Cell Morphology:** After 5 days on V8 juice medium at 20°C colonies are angular and petaloid with hyphae appressed. After 3 weeks sporangia are persistent. Sporangia ovoid or obpyriform. Oogonia absent.

## Notes

Type strain of the species; plant pathogen; this strain may require a primary growth period in a nutrient broth containing trace amount of biotin and thiamine (ATCC medium 2232) before it will grow on any subculture attempts.

No special notes

Additional, updated information on this product may be available on the ATCC web site at [www.atcc.org](http://www.atcc.org).

## DNA Sequence

GenBank accession number: JQ745261

18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence. TCCGTAGGTGAACCTGCGGAAGGATCATTACCACACCTAAAAAATTTCCACGTGAACCGTATCAACC CCTTAAATTTGGGGCTTGCTCGCGCGCTGCGTGGCTGTAATGGGTCGCGCTGYTGCTGCTGGG CGGGCTATCATGGGCGAGCGTTTGGGCTTCGGCTCGAGCTAGTAGCTATCAATTTTAAACCCCTTCTT AAATACTGAACATACTGTGGGACGAAAGTCTCTGCTTTTAACTAGATAGCAACTTTCAGCAGTGGAT GTCTAGGCTCGCACATCGATGAAGAACGCTGCGAACTGCGATACGTAATGCGAATGCAGGATTCACT GAGTCATCGAAATTTTGAACGCATATGCACTTCCGGTTAGTCTGGGAGTATGCCTGTATCAGTGTG CCGTACATCAACCTTGGTTTTCTTCCCTCCGTGTAGTCCGGTGGAGGATATGCCAGACGTGAAGTGTCTTGC TGGCGGTCTTTCGAGTCTGCCGGTGAAGTCTTTGAAATGTAAGTGAAGTGAAGTGAAGTGAAGTGAAGT GCGTGGCGTGTGCTGTTGTGGAGGCTGCCCGTGTGGCCAGTCCGGCAGTCCGGTGTGTTGTTASCTGTGGCGTT TAATGGAGGAGTGTTYGATTCCGGTATGGTTGGCTTCGGCTGAACAATCTGCTTATGGGTGCTTTTCC TGTCATTGGCGGTACGAACCTGGTGAACCGTAGCTGTGTGGTGTGGCTTTTGAACCGGCTTTGCTTTTGC GAAGTAGGGTGGCGGCTTCGGCTGTGAGGGTTCGATCCATTTTGGGAACTTTGTGTGTGCGGCTTCC TGCTGCGCGCATCTCAATTGGACCTGATATCAGGCAAGATTACCCGCTGAACCTTAAG



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GenBank accession number: JQ745268

Large subunit ribosomal RNA gene, partial sequence.

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CATATCAATAAGCGGAGGAAAAGAACTAACAAGGATCCCCTAGTAACGGCGAGTGAAGCGGGAA
GAGCTCAAGCTTAAATCTCCGTGCAAGTTTTGCGCGGCGAATTGTAGTCTATAGAGGCGTGGTCAGC
GTGGGCGCTTGGGGCAAGTTCCTTGAAGAGGACAGCATGGAGGGTGATACTCCCGTTCATCCCTGAG
TGGCTCGTGCGTACGACCCGTGTTCTTTGAGTCGCGTTGTTTGGGAATGCAGCGCAAAGTAGGTGGTAA
ATTCATCTAAAGCTAAATATTGGTGCGAGACCGATAGCGAACAGTACCGTGAGGGAAAGATGAAA
AGAAGTTTAAAAGAGAGTTAAAGAGTACCTGAAACTGCTGAAAGGGAACCGAATCGTTTCCAGTGT
CTATAATCCGTGGCATATTTTCATTGGCGAGTGTGTGCCGCGTGCGCTGTGGCAGCGGCTTTTTGGCTG
CGCTCGGTGCGTGTGTGTGTGTGCTTGTGCTGCGCTGTGCTGCGGTGGGACGTCGAGGTCAGTTCGT
ATGCTGCGGAAATGGCTGCCGAGGAGGTAGGGCTTACGCTCTGCGTTTGTCTATTATATCTTGGTGGG
CGAGTCGTCGCGGTTGGGACTGAGGTGCCTACAACGTGCTTTTGTGAGTGGGTGTGTGTCTCCGTGTGCGC
CGTGTGCGGATAGCTTGTATGCGTGTGTGGTTGTGTGTGGATTGATGCGTGCCCTAACTTGTGCGCGTT
CGGGACGTTGACGAAATGGAGCGATCCGAC
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Forest streams, Bear Creek, Alaska, USA



References and other information relating to this product are available online at [www.atcc.org](http://www.atcc.org).



Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the *Biosafety in Microbiological and Biomedical Laboratories* from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

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Additional information on this culture is available on the ATCC web site at [www.atcc.org](http://www.atcc.org).  
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