



Product Sheet

Trichoderma virens (ATCC® 9645™)

Please read this FIRST



Storage Temp.
Frozen: -80°C or colder
Freeze-Dried: 2°C to 8°C
Live Culture: See Propagation Section



Biosafety Level
1

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: *Trichoderma virens* (ATCC® 9645™)

American Type Culture Collection
PO Box 1549
Manassas, VA 20108 USA
www.atcc.org

800.638.6597 or 703.365.2700
Fax: 703.365.2750
Email: Tech@atcc.org

Or contact your local distributor

Description

Strain Designation: T-1 [CBS 430.54, DSM 1963, IAM 5061, IFO 6355, IMI 45553, NRRL 2314, QM 365]

Deposited Name: *Trichoderma* sp.

Product Description: An ampoule containing viable cells (may include spores and mycelia) 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 336: Potato dextrose agar (PDA)

ATCC® Medium 325: Malt extract agar (Blakeslee's formula)

ATCC® Medium 28: Emmons' modification of Sabouraud's agar

Growth Conditions

Temperature: 24°C to 26°C

Atmosphere: Typical aerobic

Recommended Procedure

For **freeze-dry (lyophilized) ampoules:**

1. Open an ampoule according to enclosed instructions.
2. From a single test tube of **sterile distilled water** (5 to 6 mL), withdraw approximately 0.5 to 1.0 mL with a sterile pipette and apply directly to the pellet. Stir to form a suspension.
3. Aseptically transfer the suspension back into the test tube of sterile distilled water.
4. Let the test tube sit at room temperature (25°C) undisturbed **for at least 2 hours**; longer (e.g., overnight) rehydration might increase viability of some fungi.
5. Mix the suspension well. Use several drops (or make dilutions if desired) to inoculate recommended solid or liquid medium. Include a control that receives no inoculum.
6. Incubate the inoculum at the propagation conditions recommended.
7. Inspect for growth of the inoculum/strain regularly. Viability is typically noticeable after 2-3 days of incubation. However, the time necessary for significant growth will vary from strain to strain.

Colony and Cell Morphology: Colonies growing rapidly, 8.0-9.5 cm in diameter after 4 days; aerial mycelium slightly floccose, white to grayish quickly turning dark bluish green from pistachio green with age. Chlamydospores abundantly produced, branching irregularly with each branch terminating with a cluster of 3 to 6 closely appressed phialides. Conidia broadly ellipsoid to obovoid appearing smooth walled, dark green.

Notes

No special notes.

Additional, updated information on this product may be available on the ATCC® web site at www.atcc.org.

DNA Sequence

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
GGTCTCCGTTGGTGAACCGAGCGAGGGATCATTACCGAGTTTACAACCTCCCAAACCAATGTGAACGT
TACCAAACCTGTTGCCTCGGCGGGATCTCTGCCCGGGTGCCTGCAGCCCCGGACCAAGGGCGCCCGCC
GGAGGACCAACCAAACTCTTATTGTATACCCCTCGCGGGTTTTTACTATCTGAGCCATCTCGGCGCC
CCTCGTGGCGTTTTGAAAATGAATCAAACTTTCAACAACGGATCTCTGGTTCTGGCATCGATGAAG
AACGCAGCGAAATGCGATAAGTAATGTGAATTGCAGAATTCAGTGAATCATCGAATCTTTGAACGCAC
ATTGCGCCCCCAGTATTCTGGCGGGCATGCCTGTCCGAGCGTCATTCAACCCCTCGAACCCCTCCGGG
GGTCCGCGTTGGGGATCGGCCCTTTACGGGGCCGGCCCGAAATACAGTGGCGGTCTCGCCGACGCC
TCTCTGCGCAGTAGTTTGACACTCGCATCGGGAGCGCGCGCGTCCACAGCCGTTAAACACCCCAA
ACTTCTGAAATGTTGACCTCGGATCAGGTAGGAATACCCGCTGAACCTTAAGCATATCAATAA

D1D2 region of the 28S ribosomal RNA gene

ATATCAATAAGCGGAGGAAAAGAAACCAACAGGGATTGCCCCAGTAAACGGCGAGTGAAGCGGCAAC
AGCTCAAATTTGAAATCTGGCCCTCGGGTCCGAGTTGTAATTTGTAGAGGATGCTTTTGGTGGAGGTG
CCGCCCGAGTTCCCTGGAACGGGACGCCACAGAGGGTGAAGAGCCCGTCTGGCTGGCCACCGAGCCT
CTGTAAAGCTCTTCGACGAGTGCAGTAGTTGGGAATGCTGCTCAAAATGGGAGGTATATGCTTCTA



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AAGCTAAATATTGGCCAGAGACCGATAGCGCACAAAGTAGAGTGATCGAAAGATGAAAAGCACCTTG
 AAAAGAGGGTTAAATAGTACGTGAAATTGTTGAAAAGGAAGCGCTTGTGACCGAGACTTGGGCGCGGG
 GGATCATCCGGGTTCTCTCCGGTGCACCTTCGCCCGCTTAGGCCAGCATCAGTTCTGCGCGGGGGAA
 AAAGGCTTCGGGAACGTGGCTCCTCCGGGAGTGTATAGCCCGTTGCATAATACCCTGCGGTGGACTG
 AGGACCGCGCATCTGCAAGGATGCTGGCGTAATGGTACCAGCGAC

RNA polymerase II second largest subunit

AAAGAAGCGTCTGGATCTGGTGGTCCCCTGTTGGCTAAATGTTCCGTGGTATCATGCGAAGGATGA
 ACACCGAATTGGCCAACTATCTGAGACGTTGCGTCGAGGGCAACCGACACTTCAACCTTGGCGTTGGT
 ATCAAGCCCGGCACACTTCAACCGATTGAAGTATTGCTTGGCCACTGGAACCTGGGGTATCAGAA
 GAAGGCCATGAGCTCAACTGCCGGTGTGTCTCAGGTGCTTAACCGTTACACGTTTGGCTTCGACCCTATC
 ACATTTGCGTGTACCAACACCCCATTTGGAAGAGATGGTAAGCTGGCGAAGCCTCGACAGCTTACACA
 ACACGCATTTGGGTTTGGTGTGTCCAGCCGAGACACCCGAAGGACAGGCTTGTGGTCTGGTCAAAAAC
 TTGTCTCTGATGTGCTACGTACGTGCGGTTTCCCTCCGAACCACTGATTGAGTTTCATGATCAACAGAG
 GTATGGAAGTCGTGCAAGAGTACGAGCCGCTGCGATATCCTCATGCTACCAAGATTTTCGTGAACGGT
 GTCTGGGTTGGAGTTCACCAAGACCCTAAGCATCTGGTGAACCAGGTTCTAGACACTCGTCGCAAATC
 CTATCTGCAGTATGAAGTCTCTCTCGTGAGAGATTGAGACAGGAATTCAAAATCTTTTCCGATGC
 AGGCCGTGTCATGCGACTGTATTTACCGTTGAGCAGGAGGATGACCCTGAAACAGGCATCAACAAG
 GGCCACCTGGTATTAATAAGGAGCTCGTCAACAGATTGGTAAGGAGCAAGCTGAACCTCCGGGAG
 ACCCGAGCATGAAGATTGGATGGGAGGGACTAATCAGGGCTGGTGGCGTTGAATATCTCGACGCCGA
 AGAAGAGGAGACGTGATGATTTGCATGACACCAGAGGATCTCGAGCTGTATCGTTCAGAAAAGCC
 GGTATCTCTACCGATGAAGACATGGGAGATGATCCGAACAAGCAAGCAAAAGACGAAGACCAACCCA
 ACAACCCACATGTACACACATTTGCGAGATTACCCCAAGCATGATCTTGGCCATCTGTGCTAGTATCATT
 CCTTTCCCGATCATAACCAGGTATGTCGTCAACCCCTCCGATTTTGTCTCAAAGCAATTGCTAATGGC
 GTGCACAGTCCCCCGTAACACTTACCAATCTGCC

Elongation factor 1-alpha

CTGGTACTTCCCAGGCCGATTGCGCCATTCTCATCTTGGCCCGGTAAGTGGTGGTTCGAGGCTGGTAT
 CTCCAAGGATGGCCAGACCCGTGAGCACGCTCTGCTCGCCTACACCCTGGGTGTCAAGCAGCTCATCG
 TCGCCATCAACAAGATGGACTGCAACTGGGCCGAGGCTCGTTACCAGGAAATCATCAAGGAGAC
 CTCACACTTCATTAAGAAGGTGGCTTCAACCCCAAGGCTGTTGCTTTCGTCGCCATCTCCGTTTCAAC
 GGTGACAACATGCTCCAGCCCTCCCAACTGCCCTGGTACAAGGGCTGGGAGAAGGAGACCAAGG
 CTGGCAAGTTCACCGGCAAGACCCTCCTTGGAGCCATCGACTCCATCGAGCCCCCAAGCGTCCCACG
 GACAAGCCCCCTCCGCTTCCCTCCAGGATGTGTACAAGATCGGTGGTATCGGAACGGTTCGCGTCGGC
 CGTATCGAGACTGGTGTCTCAAGCCCGGTATGGTTGTTACCTTCGCTCCTTCCAACGTCAACACTGAAG
 TCAAGTCCGTCGAGATGCACCACGAGCAGCTCGTTGAGGGTGTCCCGGTGACAACGTTGGTTTCAAC
 GTGAAGAAGCTTCCGTCGAAGGAAATCCGCCGTGGTAACGTTGCCGGTGACTCCAAGAACGCCCCCC
 CATGGGTGCCGCTTCTTCAACGCCAGGTCATCGTCATGAACCACCCCGGTGAGTCCGGTGGCCGGTCA
 CGCCCCGCTCCTTACTGCCACACTGCCACATTGCTGCAAGTTCCGCCGAGCTCCAGGAGAAGATCG
 ACCGCCGTACCAGGTAAGGCTACCGAGACTGCCCCCAAGTTCAATCAAGTCCGGTGACTCTGCCATCGTC
 AAGATGATTCCTCCAAGCCATGTGCGTTGAGGCTTTCACCGACTACCCTCCCCTGGTGGT

Isolation

Soil, Maryland

References

References and other information relating to this product are available online at www.atcc.org.

Biosafety Level: 1

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.

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