



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
GGTCTCCGTTGGTGAACCGAGGGATCATTACCGAGTTTACAACCTCCCAAACCAATGTGAACGT
TACCAAACCTGTTGCCTCGGCGGGATCTCTGCCCGGGTGCCTGCAGCCCCGGACCAAGGGCGCCGCC
GGAGGACCAACCAAACTCTTATTGTATACCCCTCGCGGGTTTTTACTATCTGAGCCATCTCGGCGCC
CCTCGTGGCGTTTTGAAAATGAATCAAACTTTCAACAACGGATCTCTGGTTCTGGCATCGATGAAG
AACGCAGCGAAATGCGATAAGTAATGTGAATTGCAGAATTCAGTGAATCATCGAATCTTTGAACGCAC
ATTGCGCCCCCAGTATTCTGGCGGGCATGCCTGTCCGAGCGTCATTCAACCCCTCGAACCCCTCCGGG
GGTCCGCGTTGGGGATCGGCCCTTTACGGGGCCGGCCCGAAATACAGTGGCGGTCTCGCCGACGCC
TCTCTGCGCAGTAGTTTGCACACTCGCATCGGGAGCGCGCGCGTCCACAGCCGTTAAACACCCCAA
ACTTCTGAAATGTTGACCTCGGATCAGGTAGGAATACCCGCTGAACCTTAAGCATATCAATAA

D1D2 region of the 28S ribosomal RNA gene

ATATCAATAAGCGGAGGAAAAGAAACCAACAGGGATTGCCCCAGTAACGGCGAGTGAAGCGGCAAC
AGCTCAAATTTGAAATCTGGCCCTCGGGTCCGAGTTGTAATTTGTAGAGGATGCTTTTGGTGGAGTG
CCGCCCGAGTTCCCTGGAACGGGACGCCACAGAGGGTGAAGAGCCCGTCTGGCTGGCCACCGAGCCT
CTGTAAAGCTCCTTCGACGAGTGCAGTAGTTGGGAATGCTGCTCAAAATGGGAGGTATATGCTTCTA



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AAGCTAAATATTGGCCAGAGACCGATAGCGCACAAAGTAGAGTGATCGAAAGATGAAAAGCACCTTG
AAAAGAGGGTTAAATAGTACGTGAAATTGTTGAAAAGGAAGCGCTTGTGACCGAGACTTGGGCGCGGG
GGATCATCCGGGTTCTCTCCGGTGCACCTTCGCCCGCTTAGGCCAGCATCAGTTCTGCGCGGGGAA
AAAGGCTTCGGGAACGTGGCTCCTCCGGGAGTGTATAGCCCGTTGCATAATACCCTGCGGTGGACTG
AGGACCGCGCATCTGCAAGGATGCTGGCGTAATGGTACCAGCGAC

RNA polymerase II second largest subunit

AAAGAAGCGTCTGGATCTGGTGGTCCCCTGTTGGCTAAATGTTCCGTGGTATCATGCGAAGGATGA
ACACCGAATTGGCCAACTATCTGAGACGTTGCGTCGAGGGCAACCGACACTTCAACCTTGGCGTTGGT
ATCAAGCCCGGCACACTTCAACCGATTGAAGTATTGCTTGGCCACTGGAACCTGGGGTATCAGAA
GAAGGCCATGAGCTCAACTGCCGGTGTGTCTCAGGTGCTTAACCGTTACACGTTTGGCTTCGACCCTATC
ACATTTGCGTGTACCAACACCCCATTTGGAAGAGATGGTAAGCTGGCGAAGCCTCGACAGCTTACA
ACACGCATTTGGGTTTGGTGTGTCCAGCCGAGACACCCGAAGGACAGGCTTGTGGTCTGGTCAAAAAC
TTGTCTCTGATGTGCTACGTACGTGCGGTTTCCCTCCGAACCACTGATTGAGTTTCATGATCAACAGAG
GTATGGAAGTCGTGCAAGAGTACGAGCCGCTGCGATATCCTCATGCTACCAAGATTTTCGTGAACCGT
GTCTGGGTTGGAGTTCACCAAGACCCTAAGCATCTGGTGAACCAGGTTCTAGACACTCGTCGAAATC
CTATCTGCAGTATGAAGTCTCTCTCGTGAGAGATTGAGACAGGAATCAAATCTTTTCCGATGC
AGGCCGTGTCATGCGACTGTATTTACCGTTGAGCAGGAGGATGACCCTGAAACAGGCATCAACAAG
GGCCACCTGGTATTAATAAGGAGCTCGTCAACAGATTGGTAAGGAGCAAGCTGAACCTCCGGGAG
ACCCGAGCATGAAGATTGGATGGGAGGGACTAATCAGGGCTGGTGGCGTTGAATATCTCGACGCCGA
AGAAGAGGAGACGTGATGATTTGCATGACACCAGAGGATCTCGAGCTGTATCGTTCAGAAAAGCC
GGTATCTCTACCGATGAAGACATGGGAGATGATCCGAACAAGCAAGACTAAAGACGAAGACCAACCCA
ACAACCCACATGTACACACATTTGCGAGATTACCCCAAGCATGATCTTGGCCATCTGTGCTAGTATCATT
CCTTTCCCGATCATAACCAGGTATGTCGTCAACCCCTCCGATTTTGTCTCAAAGCAATTGCTAATGGC
GTGCACAGTCCCCCGTAACACTTACCAATCTGCC

Elongation factor 1-alpha

CTGGTACTTCCCAGGCCGATTGCGCCATTCTCATCTTGGCCCGGTAAGTGGTGGTTCGAGGCTGGTAT
CTCCAAGGATGGCCAGACCCGTGAGCACGCTCTGCTCGCCTACACCCTGGGTGTCAAGCAGCTCATCG
TCGCCATCAACAAGATGGACTGCAACTGGGCCGAGGCTCGTTACCAGGAAATCATCAAGGAGAC
CTCCAACTTCATTAAGAAGGTGGCTTCAACCCCAAGGCTGTTGCTTTCGTCGCCATCTCCGTTTCAAC
GGTGACAACATGCTCCAGCCCTCCCAACTGCCCTGGTACAAGGGCTGGGAGAAGGAGACCAAGG
CTGGCAAGTTCACCGGCAAGACCCTCCTTGGAGCCATCGACTCCATCGAGCCCCCAAGCGTCCCACG
GACAAGCCCCCTCCGCTTCCCTCCAGGATGTGTACAAGATCGGTGGTATCGGAACGGTTCGCGTCGGC
CGTATCGAGACTGGTGTCTCAAGCCCGGTATGGTTGTTACCTTCGCTCCTTCCAACGTCAACACTGAAG
TCAAGTCCGTCGAGATGCACCACGAGCAGCTCGTTGAGGGTGTCCCGGTGACAACGTTGGTTTCAAC
GTGAAGAAGCTTCCGTCGAAGGAAATCCGCCGTGGTAACGTTGCCGGTGACTCCAAGAACGCCCCCC
CATGGGTGCCGCTTCTTACCGCCAGGTGATCGTCAATGACCACCCCGGTGAGTCCGGTCCCGGCTA
CGCCCCGCTCCTTACTGCCACACTGCCACATTCCTGCAAGTTCCGCCGAGCTCCAGGAGAAGATCG
ACCGCCGTACCGGTAAGGCTACCGAGACTGCCCCCAAGTTCAATCAAGTCCGGTACTCTGCCATCGTC
AAGATGATTCCTCCAAGCCATGTGCGTTGAGGCTTACCAGACTACCCTCCCTGGTGGT

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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