



## 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**

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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™)

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Manassas, VA 20108 USA  
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## 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](http://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  
GGTCTCCGTTGGTGAACAGCGAGGGATCATTACCGAGTTTACAACCTCCCAAACCAATGTGAACGT  
TACCAAACCTGTTGCCTCGGCGGGATCTCTGCCCGGGTGCCTGCAGCCCCGGACCAAGGGCGCCGCC  
GGAGGACCAACAAAACCTTATTGTATACCCCTCGCGGGTTTTTACTATCTGAGCCATCTCGGCGCC  
CCTCGTGGGCGTTTCGAAAATGAATCAAACCTTCAACAACGGATCTCTGGTTCTGGCATCGATGAAG  
AACGCAGCGAAATGCGATAAGTAATGTGAATTGCAGAATTCAGTGAATCATCGAATCTTTGAACGCAC  
ATTGCGCCCCCAGTATTCTGGCGGGCATGCCTGTCCGAGCGTCATTCAACCCCTCGAACCCCTCCGGG  
GGTCCGCGTTGGGGATCGGCCCTTACGGGGCCGGCCCCGAAATACAGTGGCGGTCTCGCCGACGCC  
TCTCTGCGCAGTAGTTTGCACACTCGCATCGGGAGCGCGCGCGTCCACAGCCGTTAAACACCCCAA  
ACTTCTGAAATGTTGACCTCGGATCAGGTAGGAATACCCGCTGAACCTTAAGCATATCAATAA

D1D2 region of the 28S ribosomal RNA gene


ATATCAATAAGCGGAGGAAAAGAACCAACAGGGATTGCCCCAGTAACGGCGAGTGAAGCGGCAAC  
AGCTCAAATTTGAAATCTGGCCCTCGGGTCCGAGTTGTAATTTGTAGAGGATGCTTTTGGTGGAGTG  
CCGCCCGAGTTCCTGGAACGGGACGCCACAGAGGGTGAAGAGCCCGTCTGGCTGGCCACCGAGCCT  
CTGTAAAGCTCCTTCGACGAGTGCAGTAGTTGGGAATGCTGCTCAAAATGGGAGGTATATGCTTCTA



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AAGCTAAATATTGGCCAGAGACCGATAGCGCACAAAGTAGAGTGATCGAAAGATGAAAAGCACCTTG  
 AAAAGAGGGTTAAATAGTACGTGAAATTGTTGAAAAGGAAGCGCTTGTGACCGAGACTTGGGCGCGGG  
 GGATCATCCGGGTTCTCTCCGGTGCACCTTCGCCCGCTTAGGCCAGCATCAGTTCTGCGCGGGGAA  
 AAAGGCTTCGGGAACGTGGCTCCTCCGGGAGTGTATAGCCCGTTGCATAATACCCTGCGGTGGACTG  
 AGGACCGCGCATCTGCAAGGATGCTGGCGTAATGGTACCAGCGAC

### RNA polymerase II second largest subunit

AAAGAAGCGTCTGGATCTGGTGGTCCCCTGTTGGCTAAATGTTCCGTGGTATCATGCGAAGGATGA  
 ACACCGAATTGGCCAACTATCTGAGACGTTGCGTCGAGGGCAACCGACACTTCAACCTTGGCGTTGGT  
 ATCAAGCCCGGCACACTTCAACCGATTGAAGTATTGCTTGGCCACTGGAACCTGGGGTGATCAGAA  
 GAAGGCCATGAGCTCAACTGCCGGTGTGTCTCAGGTGCTTAACCGTTACACGTTTGGCTTCGACCCATC  
 ACATTTGCGTGTACCAACACCCCATTTGGAAGAGATGGTAAGCTGGCGAAGCCTCGACAGCTTACACA  
 ACACGCATTTGGGTTTGGTGTGTCCAGCCGAGACACCCGAAGGACAGGCTTGTGGTCTGGTCAAAAAC  
 TTGTCTCTGATGTGCTACGTACGTGCGGTTTCCCTCCGAACCACTGATTGAGTTTCATGATCAACAGAG  
 GTATGGAAGTCGTGCAAGAGTACGAGCCGCTGCGATATCCTCATGCTACCAAGATTTTCGTGAACCGT  
 GTCTGGGTTGGAGTTCACCAAGACCCTAAGCATCTGGTGAACCAGGTTCTAGACACTCGTCGCAAATC  
 CTATCTGCAGTATGAAGTCTCTCTCGTGAGAGATTGAGACAGGAATTCAAAATCTTTTCCGATGC  
 AGGCCGTGTCATGCGACTGTATTTACCGTTGAGCAGGAGGATGACCCTGAAACAGGCATCAACAAG  
 GGCCACCTGGTATTAATAAGGAGCTCGTCAACAGATTGGTAAGGAGCAAGCTGAACCTCCGGGAG  
 ACCCGAGCATGAAGATTGGATGGGAGGGACTAATCAGGGCTGGTGGCGTTGAATATCTCGACGCCGA  
 AGAAGAGGAGACGTGATGATTTGCATGACACCAGAGGATCTCGAGCTGTATCGTTCAGAAAAGCC  
 GGTATCTCTACCGATGAAGACATGGGAGATGATCCGAACAAGCAAGACTAAAGACGAAGACCAACCCA  
 ACAACCCACATGTACACACATTTGCGAGATTACCCCAAGCATGATCTTGGCCATCTGTGCTAGTATCATT  
 CCTTTCCCGATCATAACCAGGTATGTCGTCAACCCCTCCGATTTTGGCTCTCAAAGCAATTGCTAATGGC  
 GTGCACAGTCCCCCGTAACACTTACCAATCTGCC

### Elongation factor 1-alpha

CTGGTACTTCCCAGGCCGATTGCGCCATTCTCATCTGCGCCGGTACTGGTGAGTTCGAGGCTGGTAT  
 CTCCAAGGATGGCCAGACCCGTGAGCACGCTCTGCTCGCCTACACCCTGGGTGTCAAGCAGCTCATCG  
 TCGCCATCAACAAGATGGACTGCAACTGGGCCGAGGCTCGTTACCAGGAAATCATCAAGGAGAC  
 CTCACACTTCATTAAGAAGGTGGCTTCAACCCCAAGGCTGTTGCTTTCGTCGCCATCTCCGTTTCAAC  
 GGTGACAACATGCTCCAGCCCTCCACCAACTGCCCTGGTACAAGGGCTGGGAGAAGGAGACCAAGG  
 CTGGCAAGTTCACCGGCAAGACCCTCCTTGGAGCCATCGACTCCATCGAGCCCCCAAGCGTCCCACG  
 GACAAGCCCCCTCCGCTTCCCTCCAGGATGTGTACAAGATCGGTGGTATCGGAACGGTTCGCGTCGGC  
 CGTATCGAGACTGGTGTCTCAAGCCCGGTATGGTGTACCTTCGCTCCTTCCAACGTCACCACTGAAG  
 TCAAGTCCGTCGAGATGCACCACGAGCAGCTCGTTGAGGGTGTCCCGGTGACAACGTTGGTTTCAAC  
 GTGAAGAAGCTTCCGTCGAAGGAAATCCGCCGTGGTAACGTTGCCGGTGACTCCAAGAACGACCCCC  
 CATGGGTGCCGCTTCTTACCGCCAGGTCATCGTCATGAACCACCCCGGTGAGTCCGGTCCCGGCTA  
 CGCCCCGCTCTTACTGCCACACTGCCACATTGCCCTGCAAGTTCCGCCGAGCTCCAGGAGAAGATCG  
 ACCGCCGTACCCGTAAGGCTACCGAGACTGCCCCCAAGTTTCATCAAGTCCGGGTGACTCTGCCATCGTC  
 AAGATGATTCCTCCAAGCCATGTGCGTTGAGGCTTACCAGACTACCCTCCCCTGGTGGT

### Isolation

Soil, Maryland

### References

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

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Please see the enclosed Material Transfer Agreement (MTA) for further details regarding the use of this product. The MTA is also available on our Web site at [www.atcc.org](http://www.atcc.org)

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

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