



# Auxenochlorella protothecoides

30581™

Product Sheet

## Description

**Strain designation:** UTEX 29 [CCAP-211/11a, Meyer No. 1]

**Deposited As:** *Chlorella vulgaris* Beijerinck

**Type strain:** No

---

## Storage Conditions

**Product format:** Frozen

**Storage conditions:** -80°C or colder for 1 week, vapor phase of liquid nitrogen for long-term storage

---

## Intended Use

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

---

## BSL 1

ATCC determines the biosafety level of a material based on our risk assessment as guided by the current edition of *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, U.S. Department of Health and Human Services. It is your responsibility to understand the hazards associated with the material per your organization's policies and procedures as well as any other applicable regulations as enforced by your local or national agencies.

ATCC highly recommends that appropriate personal protective equipment is always used when handling vials. For cultures that require storage in liquid nitrogen, it is important to note that some vials may leak when submersed in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vial exploding or blowing off its cap with dangerous force creating flying debris. Unless necessary, ATCC recommends that these cultures be stored in the vapor phase of liquid nitrogen rather than submersed in liquid nitrogen.

---

## Certificate of Analysis

For batch-specific test results, refer to the applicable certificate of analysis that can be found at [www.atcc.org](http://www.atcc.org).

---

## Growth Conditions

### Medium:

ATCC Medium 847: Algal proteose agar

**Temperature:** 25°C

**Culture system:** Axenic

---

## Handling Procedures

### Storage and Culture Initiation

Frozen ampules packed in dry ice should either be thawed immediately or stored in liquid nitrogen. If liquid nitrogen storage facilities are not available, frozen ampules may be stored at or below -70°C for approximately one week. **Do not under any circumstance store frozen ampules 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 ampule, place in a 35°C water bath, until thawed (2-3 min). Immerse the ampule just sufficiently to cover the frozen material. Do not agitate the ampule.
2. Immediately after thawing, aseptically transfer the entire contents to a single 16 x 125 mm screw-capped test tube containing 5 mL of ATCC Medium 847 broth. Incubate the tube on a 15° horizontal slant with the cap screwed on loosely (loosened one half turn) at 25°C under a 14 hour light (~50  $\mu\text{Einsteins}/\text{m}^2/\text{s}$  irradiance)/10 hour dark cycle. Alternatively, add the entire thawed contents to the surface of a 20 x 100 mm Petri plate containing 20 mL of ATCC medium 847 agar. Wrap the plate culture with parafilm and incubate upright under the same light/dark cycle as specified for a test tube culture.  
**Note:** Some algae grow poorly or not at all when recovered from the frozen state in broth media. In such cases, the algae should be recovered on agar media.

**Culture maintenance:**

1. For a broth culture, inoculate a tube of fresh broth medium with 0.1 mL from a growing culture at or near peak density. For a plate culture, transfer cells with an inoculating loop to a plate of fresh agar medium from a growing culture at or near peak density.
2. Incubate at 25°C under a 14 hour light (~50  $\mu\text{Einsteins}/\text{m}^2/\text{s}$  irradiance)/10 hour dark cycle. In the case of a broth culture, screw tube cap on loosely (loosened one-half turn) and incubate on a 15° horizontal slant.
3. Subculture as necessary (i.e., every 14-21 days in broth media).

**Cryopreservation:**

1. Harvest cells from a culture that is at or near peak density by centrifugation at 800 x g for 5 min.
2. Adjust the concentration of cells to  $2 \times 10^6$  -  $2 \times 10^7$ /mL in fresh medium.
3. While cells are centrifuging prepare a 10% (v/v) solution of sterile methanol in fresh medium.
4. Mix the cell preparation and the 10% methanol in equal portions. Thus, the final concentration will be  $10^6$  -  $10^7$  cells/mL and 5% (v/v) Methanol. The time from the mixing of the cell preparation and methanol stock solution to the beginning of the freezing process should be no less than 5 min and no greater than 15 min.
5. Dispense in 0.5 mL aliquots into 1.0 - 2.0 mL sterile plastic screw-capped cryules (special plastic vials for cryopreservation).

6. Place the vials in a controlled rate freezing unit. From room temperature cool at  $-1^{\circ}\text{C}/\text{min}$  to  $-40^{\circ}\text{C}$ . If the freezing unit can compensate for the heat of fusion, maintain rate at  $-1^{\circ}\text{C}/\text{min}$  through the heat of fusion. At  $-40^{\circ}\text{C}$  plunge into liquid nitrogen. Alternatively, place the vials in a Nalgene  $1^{\circ}\text{C}$  freezing apparatus. Place the apparatus at  $-80^{\circ}\text{C}$  for 1.5 to 2 hours and then plunge ampules into liquid nitrogen. (The cooling rate in this apparatus is approximately  $-1^{\circ}\text{C}/\text{min}$ .)
7. The frozen preparations should be stored in either the vapor or liquid phase of a nitrogen refrigerator. Frozen preparations stored below  $-130^{\circ}\text{C}$  are stable indefinitely. Those stored at temperatures above  $-130^{\circ}\text{C}$  are progressively less stable as the storage temperature is elevated. Vials should not be stored above  $-55^{\circ}\text{C}$ .
8. To establish a culture from the frozen state place an ampule in a water bath set at  $35^{\circ}\text{C}$ . Immerse the vial just to a level just above the surface of the frozen material. Do not agitate the vial.
9. Immediately after thawing, do not leave in the water bath, aseptically remove the contents of the ampule and add to a centrifuge tube containing 5 mL of ATCC medium 847 broth (without agar). Centrifuge at  $300 \times g$  for 5 min.
10. Remove most of the supernatant (=methanol, which can inhibit growth) and then resuspend the pellet. Transfer the culture to a 16 x 125 mm screw-capped test tube containing 5 mL of ATCC medium 847 broth or to the surface of an ATCC medium 847 agar plate (20 x 100 mm Petri plate containing 20 mL of ATCC medium 847 agar).
11. Incubate the culture at  $50\text{--}100 \mu\text{Einstein}/\text{m}^2/\text{s}$  irradiance at  $25^{\circ}\text{C}$ . Maintain under a 14/10h light-dark photoperiod.

---

## Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: *Auxenochlorella protothecoides* (ATCC 30581)

---

## References

References and other information relating to this material are available at

[www.atcc.org](http://www.atcc.org).

---

## Warranty

The product is provided 'AS IS' and the viability of ATCC® products is warranted for 30 days from the date of shipment, provided that the customer has stored and handled the product according to the information included on the product information sheet, website, and Certificate of Analysis. For living cultures, ATCC lists the media formulation and reagents that have been found to be effective for the product. While other unspecified media and reagents may also produce satisfactory results, a change in the ATCC and/or depositor-recommended protocols may affect the recovery, growth, and/or function of the product. If an alternative medium formulation or reagent is used, the ATCC warranty for viability is no longer valid. Except as expressly set forth herein, no other warranties of any kind are provided, express or implied, including, but not limited to, any implied warranties of merchantability, fitness for a particular purpose, manufacture according to cGMP standards, typicality, safety, accuracy, and/or noninfringement.

---

## Disclaimers

This product is intended for laboratory research use only. It is not intended for any animal or human therapeutic use, any human or animal consumption, or any diagnostic use. Any proposed commercial use is prohibited without a [license from ATCC](#).

While ATCC uses reasonable efforts to include accurate and up-to-date information on this product sheet, ATCC makes no warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. ATCC does not warrant that such information has been confirmed to be accurate or complete and the customer bears the sole responsibility of confirming the accuracy and completeness of any such information.

This product is sent on the condition that the customer is responsible for and

assumes all risk and responsibility in connection with the receipt, handling, storage, disposal, and use of the ATCC product including without limitation taking all appropriate safety and handling precautions to minimize health or environmental risk. As a condition of receiving the material, the customer agrees that any activity undertaken with the ATCC product and any progeny or modifications will be conducted in compliance with all applicable laws, regulations, and guidelines. This product is provided 'AS IS' with no representations or warranties whatsoever except as expressly set forth herein and in no event shall ATCC, its parents, subsidiaries, directors, officers, agents, employees, assigns, successors, and affiliates be liable for indirect, special, incidental, or consequential damages of any kind in connection with or arising out of the customer's use of the product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, ATCC is not liable for damages arising from the misidentification or misrepresentation of such materials.

Please see the material transfer agreement (MTA) for further details regarding the use of this product. The MTA is available at [www.atcc.org](http://www.atcc.org).

---

## Copyright and Trademark Information

© ATCC 2023. All rights reserved.

ATCC is a registered trademark of the American Type Culture Collection.

---

## Revision

This information on this document was last updated on 2025-03-17

---

## Contact Information

ATCC

10801 University Boulevard

Manassas, VA 20110-2209

USA

US telephone: 800-638-6597

## ***Auxenochlorella protothecoides***

30581

Worldwide telephone: +1-703-365-2700

Email: [tech@atcc.org](mailto:tech@atcc.org) or contact your local distributor

---