



Clostridium ljungdahlii

Tanner et al.

Product Sheet

BAA-3217TM

Description

This product is an ATCC manufactured and accessioned progeny of 55383 cited in US Pat. No. 5,173,429.

Strain designation: PETC

Deposited As: ATCC accessioned progeny of *Clostridium ljungdahlii* strain PETC cited in US Pat. No. 5,173,429 as 55383.

Type strain: Yes

Storage Conditions

Product format: Frozen

Storage conditions: -80°C or colder

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

***Clostridium ljungdahlii* Tanner et al.**

BAA-3217

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.

Growth Conditions

Medium:

Anaerobe Systems Peptone Yeast Extract Broth with Glucose (PYG) (AS-822)

ATCC Medium 1754: PETC medium

ATCC Medium 2107: Modified Reinforced Clostridial

Temperature: 37°C

Atmosphere: Anaerobic; 80% H₂, 20% CO₂

Handling Procedures

1. Keep vial frozen until ready to use. This item will also grow on ATCC Medium #2107, Reinforced Clostridial Medium (BD 218081) broth and ATCC Medium

***Clostridium ljungdahlii* Tanner et al.**

BAA-3217

#1754, PETC broth.

2. To reduce media before inoculation, use 1.5% sodium sulfide M (0.2 mL per 10 mL). Do not use 3% Cysteine as a reducing agent.
3. The 1.5% Sodium Sulfide solution (0.2 mL per 10 mL broth) needs to be added before inoculation. If needed, exchange the gas in the Hungate tube for 80% H₂-20% CO₂. Tubes need to be pressurized to 20 psi.
4. Under anaerobic conditions, preferably in an anaerobe chamber, thaw vial and then quickly transfer entire contents into a single Hungate tube of AS-822 broth. A second tube of AS-822 broth can also be inoculated with 0.5 mL from the original broth.
5. Incubate at 35 to 37°C. Initial growth may be observed at 48 hours. Suitable growth for transfer may take up to 5 to 7 days.
6. Growth on agar plates is difficult because of the gas and pressure requirements. Better results can be achieved by producing agar slants in Hungate tubes. Agar cultures require a longer incubation period.
7. Hungate tubes need to be re-gassed and pressurized after each transfer or manipulation of the culture.
8. Growth is evident by light turbidity and an accumulation of cells at the bottom of the broth tube. A wet mount may be necessary to observe growth. This strain needs to establish the growth first in broth for 4 days before transferring. This strain does not grow well on agar. No growth is observed when using TSA+5% SB agar or Brucella agar.

ANAEROBIC CONDITIONS:

1. Hungate (or Balch) tube refers to a special type of test tube that is designed to be pressurized and is suited for anaerobic work. The Hungate test tubes can be purchased from Bellco glass (www.bellcoglass.com; stock no. 204800150).
2. Resazurin is a commonly used redox indicator that is pink when the redox potential is above -50 mv., and colorless when the redox potential is below -110 mv. i.e. highly reducing. Most strict anaerobes require this low redox potential for optimum growth.
3. To obtain a fully reduced medium, it is necessary that the medium be anoxic and that a reducing agent be added. There are several common reducing agents, however, 1.5% sodium sulfide is recommended for this strain. Add 0.2 mL of reducing agent for each 10 mL of medium.
4. Syringes can be made anaerobic by one of two methods.

***Clostridium ljungdahlii* Tanner et al.**

BAA-3217

- a. Displace the dead space in the syringe with a sterile oxygen-free gas.
- b. Displace the dead space in the syringe with a reducing agent.

Notes

Tubes need to be pressurized to 20 psi.

Recommended to use AS-822 (PYG broth) from Anaerobe Systems.

This organism will also grow on ATCC Medium #2107, Reinforced Clostridial Medium (BD 218081) broth and ATCC Medium #1754, PETC broth.

Always use freshly prepared pre-reduced media or pre-reduced media that has been previously prepared but stored under anaerobic conditions. Sodium sulfate was found to be slightly inhibitory. Do not use 3% Cysteine as a reducing agent. Resazurin in the media is a color indicator for anaerobic conditions. Observance of pink color in medium before use or during incubation shows anaerobic conditions have not been met and oxidation has occurred. Medium should be discarded.

Additional information on this culture is available on the ATCC web site at www.atcc.org.

Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: *Clostridium ljungdahlii* Tanner et al. (ATCC BAA-3217)

References

References and other information relating to this material are available at 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

***Clostridium ljungdahlii* Tanner et al.**

BAA-3217

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.

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 2025-10-20

Contact Information

ATCC

10801 University Boulevard

Manassas, VA 20110-2209

USA

US telephone: 800-638-6597

Worldwide telephone: +1-703-365-2700

Email: tech@atcc.org or contact your local distributor
