



# *Neospora caninum* Dubey et al.

50939™

## Description

**Strain designation:** Nc-1/LacZ

**Deposited As:** *Neospora caninum* Dubey et al.

**Type strain:** No

---

## Storage Conditions

**Product format:** Frozen

---

## 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 2

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

**Host:** Vero (ATCC CCL-81)

**Instructions for complete medium:** Minimum essential medium (Eagle) (EMEM) (ATCC cat. 30-2003) supplemented with 10% fetal bovine serum (ATCC cat. 30-2020)

**Temperature:** 37°C

**Atmosphere:** 95% Air, 5% CO<sub>2</sub>

**Incubation:** Grown with African green monkey kidney cells with fetal bovine serum (ATCC cat. 30-2020) reduced to 3%

---

## Handling Procedures

### Cryopreservation:

1. Harvest the culture by gently agitating the contents of each flask. Transfer all but approximately 1 ml of the culture medium to 15 ml plastic centrifuge tubes.

Detach the remaining tissue culture cells (infected and uninfected) by scraping the surface of the flask with a cell scraper. Pass the resulting cell suspension through a syringe equipped with a 27 gauge 1/2 in needle and pool this suspension with the culture fluid.

2. Spin the cell suspensions at approximately 50 x g for 3 min, to remove the cellular debris.
3. Transfer the spore suspensions (supernatants) to new 15 ml plastic centrifuge tubes. Centrifuge at 1300 x g for 10 min.
4. Pool the spore pellets and adjust the concentration to  $2.0 - 4.0 \times 10^7$  cells/ml with a fresh solution of Hank's Balanced Salt Solution.

\*If the concentration is too low centrifuge at 1300 x g for 10 min and resuspend in the volume of Hank's Balanced Salt Solution required to yield the desired concentration.

5. Mix the spore preparation and 20% (v/v) DMSO in equal portions. The final concentration will be  $1.0 - 2.0 \times 10^7$  cells/ml and 10% DMSO. The time from the mixing of the cell preparation and cryoprotective solution to the start of the freezing process should be no less than 15 min. and no more than 30 min.
6. Dispense in 0.5 ml aliquots to 1.0-2.0 ml sterile plastic screw-capped cryules (special plastic vials for cryopreservation).
7. 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  $-1^\circ\text{C}/\text{min}$ .)
8. Store in either the vapor or liquid phase of a nitrogen refrigerator.
9. To thaw a frozen ampule, place it in a  $35^\circ\text{C}$  water bath such that the lip of the ampule remains above the water line. Thawing time is approximately 2 to 3 minutes. Do not agitate the ampule. Do not leave ampule in water bath after thawed.

10. Immediately after thawing, aseptically transfer contents to a T-25 tissue culture flask containing a fresh monolayer of ATCC CCL-81 cells and 10 ml ATCC 30-2003 with 3% (v/v) HIFBS.
  11. Outgas the flask for 10 seconds with a 95% air, 5% CO<sub>2</sub> gas mixture.
  12. Incubate in a 35°C CO<sub>2</sub> incubator with the caps screwed on tightly.
- 

### Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: *Neospora caninum* Dubey et al. (ATCC 50939)

---

### 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<sup>®</sup> 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

***Neospora caninum* Dubey et al.**  
50939

© 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 2025-08-21

---

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

---