

Clostridium sporogenes [CMCC (B) 64941]

TECHNICAL MANUAL — SPECIFICATION & PROTOCOLS

PRODUCT TECHNICAL PROFILE

Catalog Number:	STR64941
Strain Name:	Clostridium sporogenes
Host Organism:	Clostridium sporogenes (Gram-positive rod)
Source:	China Medical Culture Collection Center — CMCC (B) 64941
Culture Medium:	Liquid thioglycollate medium (FT), Brucella broth, CDC anaerobic blood agar, Sabouraud Dextrose Agar
Growth Conditions:	30–35°C or 36±1°C, Strict anaerobic atmosphere
Storage:	-80°C (glycerol stock); Working stock: 2–8°C (anaerobic)
Form:	100 µL Frozen glycerol stock
Biosafety Level:	BSL-2
Application:	Research and quality control strain

STRAIN IDENTIFICATION PROFILE

Classification: Strict anaerobe, spore-forming Gram-positive bacillus (Firmicutes) Phenotypic Characteristics on Diagnostic Media: - Sabouraud Dextrose Agar: Good growth; reduced iron powder causes medium darkening - Thioglycollate fluid medium: Growth beneath oxidative layer; initial streaks → turbid growth - TSC egg yolk agar: No blackening of colonies; no precipitation rings around colonies Biochemical Identification Panel: Catalase Esculin hydrolysis Nitrate reduction Arabinose fermentation Cellobiose fermentation Galactose fermentation Xylose fermentation Sucrose fermentation Sorbitol fermentation Mannitol fermentation
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STRAIN DESCRIPTION

Source & Authenticity: Clostridium sporogenes CMCC(B)64941 is a certified reference strain from the China Medical Culture Collection Center (CMCC). Organism Type: Strict anaerobe, spore-forming Gram-positive rod. Produces highly resistant endospores. Growth Requirements: Strict anaerobic atmosphere required. Optimal growth on thioglycollate medium, Brucella broth, or CDC anaerobic blood agar at 30–37°C. Some strict anaerobes may require 5–7 days for full growth expression. Differential Features: On TSC egg yolk agar, this strain shows NO blackening and NO lecithinase precipitation rings — key distinguishing features from pathogenic <i>C. perfringens</i>.
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Clostridium sporogenes is widely recognized as a non-pathogenic surrogate for *Clostrbotulinum* in sterilization and spore-inactivation validation studies due to its similar spore resistance properties. The strain's ability to grow only under strict anaerobic conditions makes it an excellent indicator organism for assessing anaerobic culture system performance and environmental monitoring programs.

Bacterial strain. Source: CMCC (B) 64941.

Classification: Firmicutes; strict anaerobe, spore-forming Gram-positive rod.

Primary Applications: QC reference strain, anaerobic method validation, sterilization/spore-inactivation studies, microbiology education and research.

Biosafety Level: BSL-2. Handle under appropriate biosafety containment with anaerobic precautions.

CULTIVATION METHODS

The following culture conditions have been validated for *Clostridium sporogenes* CMCC(B)64941:

Method A: Liquid Thioglycollate Medium (FT)

1. Inoculate into liquid thioglycollate medium (FT) under sterile anaerobic conditions.
2. Incubate at 30–35°C for 72 hours.
3. *Note:* Growth occurs beneath the oxidative layer, initially forming visible streaks and later exhibiting turbid growth throughout the medium.

Method B: Brucella Broth (Anaerobic)

1. Inoculate into Brucella broth under strict anaerobic conditions.
2. Incubate at 36±1°C for 24–72 hours.
3. *Note:* Extended incubation may be required for full growth expression in some cases.

Method C: CDC Anaerobic Blood Agar (Solid)

1. Streak inoculate onto CDC anaerobic blood agar plates.
2. Incubate at 36±1°C under anaerobic conditions for 48–72 hours.
3. *Note:* Some strict anaerobes require 5–7 days for full colony development. Observe colony morphology carefully.

RESURRECTION (RECOVERY) PROCEDURE

1. **Preparation** — Before activating the bacterial strain, prepare suitable solid and liquid culture media and equipment for its growth. All operations should be conducted under biosafety protection and sterile conditions.
2. **Opening the Stock Tube** — Remove the slant culture from storage. Under sterile conditions:
 - a) Push the safety lock block downward along the arrow direction.
 - b) Gently press the safety lock block — the lid will pop open.
 - c) Remove the test tube lid completely.
3. **Inoculation** — Use a sterile inoculating loop to pick up an appropriate amount of bacterial lawn from the slant. Inoculate it into suitable solid or liquid culture media.
4. **Incubation** — Place the inoculated culture media under suitable anaerobic conditions for incubation (refer to cultivation methods above).
5. **Post-Inoculation Storage** — After inoculation, push the safety lock block on the slant culture tube upward to lock the lid, then store it at an appropriate temperature (-80°C for long-term, 2–8°C for short-term working stock).
6. **Observation** — After cultivation, observe the growth of the strain and confirm expected colony morphology and biochemical characteristics.

IDENTIFICATION METHOD

Pick colonies from the slant and perform the following tests:

1. Inoculate into brain heart infusion broth and thioglycollate broth.
2. Streak inoculate onto TSC egg yolk agar.
3. Perform biochemical tests: catalase, esculin hydrolysis, nitrate reduction.
4. Perform carbohydrate fermentation tests: arabinose, cellobiose, galactose, xylose, sucrose, sorbitol, mannitol.

5. *Expected results:* No blackening on TSC agar, no precipitation rings. Good growth on SDA with medium darkening. Turbid growth in thioglycollate below oxidative layer.

Caution:

1. This product is FOR RESEARCH USE ONLY!
2. Culture the strain as soon as possible after receipt, then harvest and store at -80°C.
3. All operations must be conducted under biosafety protection and sterile conditions.
4. Anaerobic bacteria should be activated as soon as possible and then stored under anaerobic conditions at 2–8°C.
5. If contamination or significant changes in colony characteristics are detected, the strain shall NOT be used.
6. Strains beyond their expiration date must NOT be used; passage regularly to prevent degeneration or death.
7. If the strain is found inactive or contaminated after purchase, please contact us within one week from the date of purchase.

Biosafety Warning

1. This product is **FOR RESEARCH USE ONLY!** Not for diagnostic or therapeutic applications.
2. *Clostridium sporogenes* is classified as BSL-2. Handle in appropriate biosafety containment with anaerobic precautions.
3. Users should store, handle, and dispose of the strains under safe and appropriate conditions.
4. Decontaminate all materials before disposal using validated sterilization methods.

***Clostridium sporogenes* [CMCC (B) 64941] | Catalog No. STR64941**

For research use only. Not for diagnostic or therapeutic applications.

China Medical Culture Collection Center (CMCC) Certified Reference Strain