Mycobacterium sp.

TSD-484™

Description

Mycobacterium sp. strain MM–1 is an aerobic methane-oxidizing bacterium. Although many *Mycobacterium* spp. are known to be pathogenic, strain MM-1 has not been confirmed to be pathogenic. Strain MM-1 exhibits rod or short rod cell morphology; the cells are approximately 1.5–3.0 µm long and 1.0 µm width. The optimum growth temperature is 30°C, and the optimal growth pH range is 3–4. In the case of DNA extraction from strain MM-1, the method proposed by Epperson and Strong (2020) is recommended. This method is suitable for obtaining longer DNA strands for long-read whole genome sequencing.

Strain designation: MM-1
Type strain: Yes
Type strain description: This culture provided to the ATCC type strain depository is neither produced nor characterized by ATCC. No technical information is available on this material. Refer to depositor for technical information on this strain.
Technical information: ATCC Product Experience does not have technical information on type strain deposits that are not fully characterized. Additional information can be found in the depositor's publication.

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 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

Temperature: 30°C
Atmosphere: 90% Air, 10% CH_4
Incubation: 45 to 70 days

Handling Procedures

Depositor-recommended growth conditions:

Medium for strain MM-1:
To prepare the medium, dissolve the following components in grams per liter of distilled water:
NH_4Cl: 0.764 g
Mineral stock solution: 1 mL
Trace elements stock solution: 1 mL
$FeSO_4$ $7H_2O$ stock solution: 1 mL
KNO_3 stock solution: 1 mL
KH_2PO_4 stock solution: 1mL
Adjust the pH to a range of 3.9–4.1 by adding 100 µL of 0.1 M H_2SO_4. Finally, solidify the medium by adding 2.2% (w/v) gellan gum and autoclave at 121°C for 20 minutes.

Mineral stock solution (in grams per liter)
$CaCl_2{\cdot}2H_2O$, 5; $MgCl_2{\cdot}6H_2O$, 33; KCl, 16.

Trace elements stock solution (in grams per liter)
$CoCl_2{\cdot}6H_2O$, 0.17; $ZnSO_4{\cdot}7H_2O$, 0.15; H_3BO_3, 0.06; $MnCl{\cdot}4H_2O$, 0.04; $CuCl_2{\cdot}2H_2O$, 0.027; $Na_2MoO_4{\cdot}2H_2O$, 0.025; $AlCl_3$, 0.013; $NiCl_2{\cdot}6H_2O$, 0.024; Na_2SeO_4, 0.0017; Na_2WO_4 $2H_2O$, 0.0033.

$FeSO_4$ $7H_2O$ stock solution (in grams per liter)
$FeSO_4$ $7H_2O$, 5.49.

KNO_3 stock solution (in grams per liter)
KNO_3, 7.25.

KH_2PO_4 stock solution (in grams per liter)
KH_2PO_4, 8.29.

Cultivation conditions

- Unsealed plates are employed in the cultivation process.
- To establish the necessary methane atmosphere, these plates, along with their

lids, are placed upside down within a sealing bag.
- After filling the sealing bag with methane and sealing it, open the lid of the plate to fill the plate space with methane and then close the lid.
- The sealing bag is filled with approximately 10% methane, balanced with air.
- Any suitable bag or container can be utilized for cultivation, provided it can effectively contain methane.
- Colonies of the isolated microbe typically appear when cultivated in a methane atmosphere.
- The expected time frame for colony appearance is within 1.5 to 2.5 months.

Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: *Mycobacterium* sp. (ATCC TSD-484)

References

References and other information relating to this material are available at www.atcc.org.

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ATCC may fully accessions new type strains into its general culture collection. At that time, ATCC will provide an “ATCC” designation to the strain, fully characterize the strain, and provide a Certificate of Analysis with authentication data for that specific item.

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