



## INSTRUCTIONS FOR USE

### LACTOBACILLUS MRS AGAR (LMRS AGAR)

#### PRODUCTS

AS-6429

Lactobacillus MRS Agar (LMRS AGAR)

4 plates / pkg

#### INTENDED PURPOSE

TruPRAS™ Anaerobic Culture Media is intended for the transport, preservation, or cultivation of a wide variety of microorganisms from specimens to aid in the isolation of bacteria for in vitro diagnostic and / or research / general laboratory purposes.

#### INTENDED USERS

Scientists, laboratory, and healthcare professionals trained in anaerobic microbiology techniques working in areas such as clinical, research, industrial, pharmaceutical and veterinary applications.

#### FORMULATION\*

LMRS agar is an enriched selective medium formulated for the growth of *Lactobacillus* species from clinical, dairy, and food specimens. Originally developed by de Man, Rogosa, and Sharpe, LMRS agar supports the growth of *Lactobacillus* while inhibiting competing organisms. The medium contains proteose peptone no. 3, beef extract, yeast extract, and dextrose as a rich nutritional base. It is supplemented with polysorbate 80 and magnesium to provide essential fatty acids and additional growth factors. Sodium acetate and ammonium citrate act as selective agents by suppressing the growth of gram-negative bacteria, oral flora, and fungi, enhancing recovery of *Lactobacillus* species. The pH is adjusted to 6.2 – 6.8 to create an optimal environment for the growth of *Lactobacillus* species. This medium is prepared, dispensed, and packaged under oxygen-free conditions using TruPRAS™ Technology to prevent the formation of oxidized products prior to use. This product is supplied ready to use, with no pre-reduction step required.

Proteose peptone no. 3	10.00	g
Beef extract	10.00	g
Yeast extract	5.00	g
Dextrose	20.00	g
Polysorbate 80	1.00	mL
Ammonium citrate	2.00	g
Sodium acetate	5.00	g
Magnesium sulfate	0.10	g
Manganese sulfate	0.05	g
Potassium phosphate dibasic	2.00	g
Agar	15.00	g
DI Water	1.00	L

\*Approximate formula. Adjusted and/or supplemented as required to meet performance criteria.

Final pH: 6.5 ± 0.3 at 25°C

Final weight: 16.0 g ± 1.6 g



## PRECAUTIONS

For *IN VITRO DIAGNOSTIC USE* only. Utilize approved biohazard precautions and aseptic technique when using this product. This product is for use by properly trained and qualified personnel only. Sterilize all biohazard waste prior to disposal. This product is manufactured as a single use device.

Report serious incidents that occur in direct relation to this product to [tech@biolog.com](mailto:tech@biolog.com). As necessary, report serious incidents to the regulatory authority in which the user is established.

This product may contain components of animal origin. All components of animal origin have been sourced from Bovine Spongiform Encephalopathy- (BSE-) free and Transmissible Spongiform Encephalopathy- (TSE-) free countries. Certified knowledge of the origin of animal derived components does not guarantee the absence of transmissible pathogenic agents. It is recommended that Universal Precautions be observed.

When working with anaerobic culture media, the potential for ergonomic hazards may exist due to repetitive motions, awkward postures, improper bench/chair heights or poor lighting. Although it is beyond the scope and provision of products by Anaerobe Systems, it should be recognized and mitigated by the end user in the laboratory environment.

## STORAGE AND SHELF LIFE

**Storage:** Upon receipt, store at room temperature (15 – 25°C) in original package until used. Avoid overheating or freezing. Do not use media if there are signs of deterioration (shrinking, cracking, or discoloration due to oxidation of media) or contamination. The expiration date applies to the product in its original packaging and stored as directed. Do not use product past the expiration date shown on the label.

**Shelf Life:** 4 months from the date of manufacture.

## PROCEDURE

**Specimen Collection:** Protect specimens for anaerobic culture from oxygen during collection, transportation, and processing. Consult appropriate references for detailed instructions concerning collection and transportation of anaerobes. The selection of specimens for culture is made by physicians or scientists collecting the sample.

**Methods for Use:** LMRS agar should be inoculated directly with a specimen or from a broth that has been inoculated from a specimen. Streak plates with inoculum to obtain isolated colonies and immediately place into an anaerobic atmosphere, incubating at 35 – 37°C for 18 – 48 hours. Extended periods of incubation may be required to recover slower growing anaerobes. Extended incubation time may also result in loss of inhibition of the medium which can result in the overgrowth of organisms that should be inhibited. Detailed instructions for processing anaerobic cultures can be found in the listed references. As packaged, this medium constitutes a qualitative, manual method.

## MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as loops, saline blanks, slides, staining supplies, microscope, incinerator / autoclave, incubators, anaerobic chamber / anaerobic jars, disinfectant, other culture media, and serological / biochemical reagents.

## INTERPRETATION OF RESULTS

LMRS agar will support robust growth of *Lactobacillus* from a specimen. The appearance and abundance of growth will depend on factors such as specimen quality, incubation conditions, and organism load.



## LIMITATIONS

LMRS agar will not provide complete information for the identification of bacterial isolates. Additional test procedures and media are required for complete identification. It is recommended that a non-selective medium, such as Brucella Blood Agar (BRU, catalog #: AS-111) also be inoculated from the same specimen to assure recovery of all species present. Consult reference materials for additional information.

## QUALITY CONTROL

The following organisms are routinely used for quality control testing at Anaerobe Systems using the specifications outlined in the CLSI document M22-A3: Quality Control for Commercially Prepared Microbiological Culture Media.

Organism Tested	ATCC® #	Results
Limosilactobacillus vaginalis	49540	Growth
Lactobacillus acidophilus	4356	Growth
Lactobacillus crispatus	33197	Growth
Lactobacillus jensenii	25258	Growth
Limosilactobacillus fermentum	9338	Growth

**User Quality Control:** The final determination to the extent and quantity of user laboratory quality control must be determined by the end user.

If the nutritive capacity of this medium is to be tested for performance, it is recommended that the following ATCC® organisms be evaluated for growth.

Organism	ATCC® #	Expected Results
Lactobacillus acidophilus	4356	Growth
Lactobacillus crispatus	33197	Growth
Limosilactobacillus fermentum	9338	Growth
Lactobacillus jensenii	25258	Growth

**Physical Appearance:** LMRS agar should appear translucent yellow in color.

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

## REFERENCES

1. CLSI. *Principles and Procedures for Detection of Anaerobes in Clinical Specimens; Approved Guideline*. CLSI document M56-A. Clinical and Laboratory Standards Institute; 2014
2. Leber AL, Burnham CA, eds. *Clinical Microbiology Procedures Handbook*. 5th ed. 4 vols. Washington, DC: ASM Press; 2023.
3. Carroll KC, Pfaller MA, eds. *Manual of Clinical Microbiology*. 13th ed. 4 vols. Hoboken, NJ: Wiley-Blackwell; 2023.
4. Jousimies-Somer HR, Sutter VL, eds. *Wadsworth-KTL Anaerobic Bacteriology Manual*. 6th ed. Belmont, CA: Star Publishing Company; 2002.
5. CLSI. *Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard- Third Edition*. CLSI document M22-A3. Wayne, PA: Clinical and Laboratory Standards Institute; 2004.



6. de Man JC, Rogosa M, Sharpe ME. A medium for the cultivation of lactobacilli. *J Appl Bacteriol.* 1960;23(1):130–135.
7. U.S. Department of Agriculture, Animal and Plant Health Inspection Service. *Animal Health Status of Regions.* Published March 12, 2025. <https://www.aphis.usda.gov/regionalization-evaluation-services/region-health-status>
8. European Commission. *Note for guidance on minimising the risk of transmitting animal spongiform encephalopathy agents via human and veterinary medicinal products (EMA/410/01 Rev. 3).* Published March 5, 2011. <https://op.europa.eu/en/publication-detail/-/publication/3392e464-ba89-4ae4-955c-a07f617c8e06/language-en>

## GLOSSARY OF SYMBOLS

SYMBOL	TITLE	DESCRIPTION	STANDARD	REF#
	Catalog number	Indicates the manufacturer's catalog number so that the medical device can be identified.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.1
	Lot number/ Batch code	Indicates the manufacturer's batch code so that the batch or lot can be identified.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.5
	Use-by date	Indicates the date after which the medical device is not to be used.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.4
	Authorized Representative	Indicates the Authorized Representative in the identified country or jurisdiction.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.2
	Do not re-use/ Single use only	Indicates a medical device that is intended for one single use only.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.4.2
	Consult instructions for use or consult electronic instructions for use	Indicates the need for the user to consult the instructions for use.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.4.3
	Temperature limit	Indicates the temperature limits to which the medical device can be safely exposed.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.3.7
	In vitro diagnostic medical device	Indicates that a medical device is intended to be used as an in vitro diagnostic medical device	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.5.1
	CE Mark European Conformity	Designates that the product labeled is authorized for sale in European countries.	EU IVDR (EU) 2017/746	

### AUTHORIZED REPRESENTATIVE INFORMATION



### REVISION 3

Additions: None

Changes: Extended shelf life from 90 days to 4 months.

Deletions: None