Listeria Enrichment Medium Base (UVM Medium)

M890A

Intended use

Recommended for selective isolation and cultivation of *Listeria monocytogenes* from clinical specimens.

Composition**

Ingredients	Gms / Litre
Tryptone	5.000
Proteose peptone	5.000
HM peptone B #	5.000
Yeast extract	5.000
Sodium chloride	20.000
Potassium dihydrogen phosphate	1.350
Disodium hydrogen phosphate	12.000
Esculin	1.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

- Equivalent to Beef extract.

Directions

Suspend 27.17 grams in 500 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add rehydrated contents of 1 vial of Listeria UVM Supplement I (FD136) for primary enrichment or 1 vial of Listeria UVM Supplement II (FD137) for secondary enrichment. Mix well and dispense into tubes or flasks as desired.

Principle And Interpretation

Listeriosis is caused by *Listeria monocytogenes*, a short gram-positive non-sporulating rod. The bacilli are commonly found in soil and in the intestines of many animals including birds, fish, barnyard animals, dairy cattle and household pets. It is transmitted to humans by foods contaminated with faecal matter, as well as by the consumption of animal foods contaminated with the bacilli (1). Listeria Enrichment Medium Base is used for the selective cultivation and isolation of *L. monocytogenes* from clinical samples. The medium was originally formulated by Donnelly and Baigent (3). It was later modified by decreasing the nalidixic acid concentration in the selective supplements and subsequently increasing the acriflavin concentration (6). University of Vermont Modification Medium (UVM) used a two-step selective enrichment medium resulting in a higher isolation rate of *L.monocytogenes* from meat products within 3-4 days. This UVM Broth is recommended as a primary enrichment broth for recovery of heat-injured *Listeria* (2).

Tryptone, proteose peptone, HM peptone B and yeast extract provide nitrogenous and carbonaceous compounds, long chain amino acids and other necessary nutrients while esculin offers differential properties to the medium. Nalidixic acid and acriflavin hydrochloride together with higher concentration of phosphate render the medium selective for *Listeria*. Gram-negative and gram-positive organisms are inhibited by nalidixic acid and acriflavin hydrochloride respectively.

The two-step selective enrichment method developed (3) results in a higher detection rate of *L.monocytogenes* from specimens and has the added advantage of only taking 3-4 days. For primary isolation inoculate 25 gm or 25 ml specimen in 225 ml Listeria Enrichment Medium Base with added Listeria UVM Supplement I (FD136). After 24 hours incubation, spread 0.2 ml of this medium on Listeria Selective Agar (M567) plate. Simultaneously transfer 0.1 ml of Enrichment broth to 10 ml of fresh Listeria Enrichment Medium Base with added Listeria UVM Supplement II (FD137). For secondary enrichment after 24 hours spread 0.2 ml of this medium on Listeria Selective Agar (M567) plate. Note: Broth cultures of *Listeria* are more dangerous than colonies on agar plates, so proper precautions should be taken while handling.

Type of specimen
Clinical samples

Specimen Collection and Handling
For clinical samples follow appropriate techniques for handling specimens as per established guidelines (4,5).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :
In Vitro diagnostic Use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets

Limitations :
1. The medium is not differential, so further biochemical testing is required for identification between *Listeria* species.

Performance and Evaluation
Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control
Appearance
Cream to light tan homogeneous free flowing powder

Colour and Clarity of prepared medium
Medium amber coloured, slightly opalescent solution with a bluish tinge

Reaction
Reaction of 5.43% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH
7.20-7.60

Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours .

Organism	Inoculum (CFU)	Growth(On addition of FD136 or FD137)
Escherichia coli ATCC 25922 (00013)*	50-100	none to poor
Listeria monocytogenes ATCC 19111 (00020)*	50-100	good-luxuriant
Listeria monocytogenes ATCC 19112	50-100	good-luxuriant
Listeria monocytogenes ATCC 19117	50-100	good-luxuriant
Listeria monocytogenes ATCC 19118	50-100	good-luxuriant
Staphylococcus aureus subsp. aureus ATCC 25923 (00034)*	50-100	none to poor

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

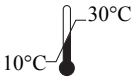
Reference

1. Alcamo E. I., 2001, Fundamentals of Microbiology, 6th Edition, Jones and Bartlett publishers
2. Bailey J. S., Fletcher D. L. and Cox N. A., 1990, J. Food Prot.,53:473.
3. Donnelly C. W. and Baigent G. J., 1986, Appl. Environ. Microbiol., 52:689.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
5. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
6. McClain D. and Lee W. H., 1988, J. Assoc. off Anal. Chem., 71:660.

Revision : 02 / 2019

IVD — In vitro diagnostic medical device

CE Marking



Storage temperature

Do not use if package is damaged

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