UVM MODIFIED LISTERIA ENRICHMENT BROTH

Cat. no. U51	UVM Modified Listeria Enrichment Broth, 500ml Polycarbonate Bottle, 500ml	10 bottles/box
Cat. no. U153	UVM Modified Listeria Enrichment Broth, 500ml Polycarbonate Bottle, 225ml	10 bottles/box

INTENDED USE

Hardy Diagnostics UVM Modified Listeria Enrichment Broth is recommended for the rapid isolation of *Listeria monocytogenes*.

This product is not intended to be used for the diagnosis of human disease.

SUMMARY

Listeria monocytogenes is a widespread problem in public health and food industries. *Listeria monocytogenes* was first described in 1926 by Murray, Webb and Swann, and can cause human illness and death, particularly in immunocompromised individuals and pregnant women.[1,2] The first reported food-borne outbreak of listeriosis was in 1985.[3] The principle route of transmission is via the consumption of foodstuffs contaminated with *Listeria monocytogenes*.[4]

This organism has been isolated from turkey frankfurters, coleslaw, pasteurized milk, Mexican-style cheese, pate, and pickled pork tongue.[5] *Listeria monocytogenes* is present in a wide range of unprocessed foods as well as in soil, sewage, silage, and river water.[6] *Listeria* species can grow over a pH range of 5.0-9.6 and survive in food products with pH levels outside of that range.[7]

UVM Modified Listeria Enrichment Broth is a modification of the formula described by Donnelly and Baigent.[9] It is used for selective enrichment of *Listeria* spp. from food and clinical specimens.

UVM Modified Listeria Enrichment Broth contains beef extract, yeast extract, pancreatic digest of casein, and peptic digest of animal tissue which provide nitrogen, vitamins and minerals. Sodium chloride is added to maintain osmotic balance and phosphate is added as a buffer. Nalidixic acid inhibits gram-negative organisms and acriflavine hydrochloride inhibits many gram-positive bacteria. Esculin is hydrolyzed by *Listeria* species.

FORMULA

Ingredients per liter of deionized water:*

Sodium Chloride	20.0gm
Disodium Phosphate	9.6gm
Pancreatic Digest of Casein	5.0gm

Peptic Digest of Animal Tissue	5.0gm
Beef Extract	5.0gm
Yeast Extract	5.0gm
Monopotassium Phosphate	1.35gm
Esculin	1.0gm
Nalidixic Acid	20.0mg
Acriflavine HCl	12.0mg

Final pH 7.2 +/- 0.2 at 25°C.

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

STORAGE AND SHELF LIFE

Storage: Upon receipt store at 2-30 degrees C. away from direct light. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), contamination, or if the expiration date has passed. Product is light and temperature sensitive; protect from light, excessive heat, moisture, and freezing.

The expiration dating on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended quality control incubation times.

Refer to the document "Storage" for more information.

PRECAUTIONS

This product may contain components of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not guarantee the absence of transmissible pathogenic agents. Therefore, it is recommended that these products be treated as potentially infectious, and handle observing the usual universal blood precautions. Do not ingest, inhale, or allow to come into contact with skin.

This product is for laboratory use only. It is to be used only by adequately trained and qualified laboratory personnel. Observe approved biohazard precautions and aseptic techniques. All laboratory specimens should be considered infectious and handled according to "standard precautions." The "Guidelines for Isolation Precautions" is available from the Centers for Disease Control and Prevention at www.cdc.gov/ncidod/dhqp/gl_isolation.html.

For additional information regarding specific precautions for the prevention of the transmission of all infectious agents from laboratory instruments and materials, and for recommendations for the management of exposure to infectious disease, refer to CLSI document M-29: *Protection of Laboratory Workers from Occupationally Acquired Infections: Approved Guideline.*

Sterilize all biohazard waste before disposal.

Refer to the document "Precautions When Using Media" for more information.

Refer to the document SDS Search instructions on the Hardy Diagnostics' website for more information.

PROCEDURE

1. Collect specimens or food samples in sterile containers or with sterile swabs and transport immediately to the laboratory following recommended guidelines.[7,10-12]

2. Clinical specimens obtained from non-sterile sites, foods and specimens obtained from the environment should be

selectively enriched for *Listeria* species before being plated.[10]

3. Process each specimen using procedures appropriate for that specimen or sample.[7,10-12]

Test Procedure

The USDA method involves enrichment of the specimen in UVM Modified Listeria Broth (one part sample in nine parts broth) at 30 degrees C. After incubation, a portion of the enrichment mixture is added to an enrichment broth or plated onto the final isolation agar.[7,11] For further information when testing food samples or clinical specimens, refer to appropriate references.[7,10-12]

INTERPRETATION OF RESULTS

Refer to appropriate references and procedures for results.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification.

Refer to the document "Limitations of Procedures and Warranty" for more information.

MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as loops, other culture media, swabs, applicator sticks, incinerators, and incubators, etc., as well as serological and biochemical reagents, are not provided.

QUALITY CONTROL

Hardy Diagnostics tests each lot of commercially manufactured media using appropriate quality control microorganisms and quality specifications as outlined on the Certificates of Analysis (CofA). The following organisms are routinely used for testing at Hardy Diagnostics:

Test Organisms	Inoculation Method*	Incubation			Results
		Time	Temperature	Atmosphere	
*Listeria monocytogenes*** ATCC® 19114	A	18-48hr	35°C	Aerobic	Growth
Staphylococcus aureus ATCC® 29523	B	18-48hr	35°C	Aerobic	Partial to complete inhibition
*Escherichia coli*** ATCC® 25922	B	18-48hr	35°C	Aerobic	Partial to complete inhibition
*Enterococcus faecalis*** ATCC® 29212	B	18-48hr	35°C	Aerobic	Partial to complete inhibition

* Refer to the document "Inoculation Procedures for Media QC" for more information.

** Recommended QC strains for User Quality Control according to the CLSI document M22 when applicable.

USER QUALITY CONTROL

End users of commercially prepared culture media should perform QC testing in accordance with applicable government regulatory agencies, and in compliance with accreditation requirements. Hardy Diagnostics recommends

end users check for signs of contamination and deterioration and, if dictated by laboratory quality control procedures or regulation, perform quality control testing to demonstrate growth or a positive reaction and to demonstrate inhibition or a negative reaction, if applicable. Hardy Diagnostics quality control testing is documented on the certificates of analysis (CofA) available from Hardy Diagnostics Certificates of Analysis website. In addition, refer to the following document "Finished Product Quality Control Procedures," for more information on QC or see reference(s) for more specific information.

PHYSICAL APPEARANCE

UVM Modified Listeria Enrichment Broth should appear clear, may have a slight precipitate, and light amber in color.

REFERENCES

1. Murray, E.G.D., R.A. Webb, and M.B.R. Swann. 1926. A disease of rabbits characterized by large mononuclear leucocytosis caused by a hitherto undescribed bacillus *Bacterium monocytogenes* . *J. Path. Bact.* ; 29:407-0439.

2. Monk, J.D., R.S. Clavero, L.R. Beuchat, M.P. Doyle, and R.E. Brackett. 1994. Irradiation inactivation of *Listeria monocytogenes* and *Staphylococcus aureus* in low- and high-fat, frozen and refrigerated ground beef. *J. Food Prot.* ; 57:969-974.

3. Wehr, H.M. 1987. *Listeria monocytogenes* - a current dilemma special report. *J. Assoc. Off. Anal. Chem.* ; 70:769-772.

4. Bremer, P.J. and C.M. Osborne. 1995. Thermal-death times of *Listeria monocytogenes* in green shell mussels (*Perna canaliculus*) prepared for hot smoking. *J. Food Prot.* ; 58:604-608.

5. Grau, F.H. and P.B. Vanderlinde. 1992. Occurrence, numbers, and growth of *Listeria monocytogenes* on some vacuum-packaged processed meats. *J. Food Prot.* ; 55:4-7.

6. Patel, J.R., C.A. Hwang, L.R. Beuchat, M.P. Doyle, and R.E. Brackett. 1995. Comparison of oxygen scavengers for their ability to enhance resuscitation of heat-injured *Listeria monocytogenes. J. Food Prot.* ; 58:244-250.

7. Donnelly, C.W., R.E. Brackett, D. Doores, W.H. Lee, and J. Lovett. 1992. Compendium of Methods for the Microbiological Examination of Foods, 3rd ed. *American Public Health Association* , Washington, D.C.

8. Kramer, P.A. and D. Jones. 1969. Media selective for *Listeria monocytogenes* . *J. Appl. Bacteriol.* ; 32:381-394.

9. Donnelly, C.W. and G.J. Baigent. 1986. Method for flow cytometric detection of *Listeria monocytogenes* in milk. *Appl. Environ. Microbiol.* ; 52:689-695.

10. Jorgensen, et al. *Manual of Clinical Microbiology*, American Society for Microbiology, Washington, D.C.

11. Lee, W.H. and D. McClain. 1989. Laboratory Communication, No.57. USDA, F.S.I.S. Microbiology Division, Bethesda, MD.

12. Hayes, P.S., L.M. Graves, B. Swaminathan, G.W. Ajello, G.B. Marcolm, R.E. Weaver, R. Ransom, K. Deaver, B.D. Plikaytis, A. Schuchat, J.D. Wenger, R.W. Pinner, C.V. Broome, and The *Listeria* Study Group. 1992. Comparison of three selective enrichment methods for the isolation of *Listeria monocytogenes* from naturally contaminated foods. *J. Food Prot.*; 55:952-959.

IFU-10828[A]

1430 West McCoy Lane, Santa Maria, CA 93455, USA
Phone: (805) 346-2766 ext. 5658
Fax: (805) 346-2760
Website: www.HardyDiagnostics.com
Email: TechService@HardyDiagnostics.com
Ordering Information

Distribution Centers:
California · Washington · Utah · Arizona · Texas · Ohio · New York · Florida · North Carolina

The Hardy Diagnostics manufacturing facility and quality management system is certified to ISO 13485.

HDQA 2207D [C]