



McBride Listeria Agar Base

M386

McBride Listeria Agar base is used for selective isolation and cultivation of *Listeria monocytogenes* from foodstuffs, clinical samples.

Composition**

Ingredients	Gms / Litre
Tryptose	10.000
Beef extract	3.000
Sodium chloride	5.000
Glycine anhydride	10.000
Lithium chloride	0.500
Phenyl ethanol	2.500
Agar	15.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 46.00 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool below 50°C. Before gelling, aseptically add sterile defibrinated blood to a final concentration of 5% and add filter sterilized McBride Listeria Supplement (FD070). Mix well and pour into sterile Petri plates.

Warning : Lithium chloride is harmful. Avoid bodily contact and inhalation of vapours. On contact with skin, wash with plenty of water immediately.

Principle And Interpretation

The disease listeriosis is a frequent cause of abortions in cattle and sheep. In human, symptoms are manifested as septicemia, encephalitis and circulatory monocytosis (1). *Listeria* multiplies over a wide range of temperatures, from 3°C to 45°C, and over a pH range of 5.0 to 9.6. It also survives in food products with pH levels outside these parameters (2). Because of these properties, *Listeria* survives the various food processing techniques (3). McBride Listeria Agar (4), recommended by APHA (5) is used for isolating *Listeria* from clinical specimens and foodstuffs including raw milk (6). This medium helps in the detection of low numbers of

L. monocytogenes present in food samples.

Tryptose and beef extract in the medium supply nitrogen, carbon, sulphur and trace nutrients required for the growth of *Listeria*. Phenyl ethyl alcohol is bacteriostatic for gram-negative bacteria as it selectively inhibits DNA synthesis (7). Sodium chloride maintains the osmotic balance of the medium. Glycine inhibits certain gram-negative and gram-positive bacteria including *Escherichia coli* and *Enterococcus faecalis*, the common accompanying contaminants. Lithium chloride also has antibacterial activity. Further selectivity is achieved by the addition of McBride Listeria Supplement (FD070). The detection of *L. monocytogenes* is greatly improved by pre-enrichment in liquid media either by one step or two steps. In one step method (8), infected material is inoculated directly in Listeria Selective Broth Base (M889), while in two steps method (9), infected material is inoculated in Listeria Enrichment Broth Base (UVM) (M890A) and incubated at refrigeration temperature of 4°C for few weeks (cold enrichment), as the organism has the ability to grow in low temperature. It is then inoculated in Fraser Secondary Enrichment Broth Base (M1083), followed by plating onto selective agar such as McBride Listeria Agar. The presumptive *Listeria* colonies are selected under 45° transillumination. *Listeria* colonies are dense white to iridescent white appearing as crushed glass. Small colonies tend to be blue, while non-*Listeria* show yellowish orange colonies that are further purified. McBride Listeria Agar can be used as a plating medium with or without supplementation of blood.

Quality Control

Appearance

Please refer disclaimer Overleaf.

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Basal medium :Light amber coloured clear to very slightly opalescent gel. After addition of 5% v/v sterile blood : Cherry red opaque gel forms in Petri plates

Reaction

Reaction of 4.6% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH

7.10-7.50

Cultural Response

M386: Cultural characteristics observed in anaerobic atmosphere with added McBride Listeria Supplement(FD070) and 5% v/v sterile defibrinated blood, after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth w/ FD070	Recovery w/ FD070	Growth w/ blood and FD070	Recovery w/ blood and FD070
<i>Listeria monocytogenes</i> ATCC 19112	50-100	good-luxuriant	>=50%	good-luxuriant	>=50%
<i>Escherichia coli</i> ATCC 25922	50-100	none-poor	<=10%	none-poor	<=10%
<i>Pseudomonas aeruginosa</i> ATCC 27853	50-100	none-poor	<=10%	none-poor	<=10%
<i>Enterococcus faecalis</i> ATCC 29212	50-100	none-poor	<=10%	none-poor	<=10%

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

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Revision : 1 / 2011



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