

## TM 905 - MCBRIDE LISTERIA AGAR BASE

### INTENDED USE

For selective isolation and cultivation of *Listeria* species from clinical samples and food stuff.

### PRODUCT SUMMARY AND EXPLANATION

The disease listeriosis is a frequent cause of abortions in cattle and sheep. In human, symptoms are manifested as septicemia, encephalitis and circulatory monocytosis. *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. Because of these properties, *Listeria* survives the various food processing techniques. McBride Listeria Agar, recommended by APHA is used for isolating *Listeria* from clinical specimens and foodstuffs including raw milk. This medium helps in the detection of low numbers of *L. monocytogenes* present in food samples.

### COMPOSITION

Ingredients	Gms / Ltr
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

### PRINCIPLE

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. 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. 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, infected material is inoculated directly in Listeria Selective Broth Base, while in two steps method, infected material is inoculated in Listeria Enrichment Broth Base 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, 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.

### INSTRUCTION FOR USE

- Dissolve 46.00 grams in 1000 ml distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi 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.
- 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.



### QUALITY CONTROL SPECIFICATIONS

- Appearance of Powder** : Cream to yellow homogeneous free flowing powder.
- Appearance 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.
- pH (at 25°C)** : 7.3±0.2

### INTERPRETATION

Cultural characteristics observed in anaerobic atmosphere with added McBride Listeria Supplement and 5%v/v sterile defibrinated blood, after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth/w mcbride Listeria Supplement	Recovery/w mcbride Listeria Supplement	Growth w blood, mcbride Listeria Supplement	Recovery/w blood, McBride Listeria Supplement	Incubation Temperature	Incubation Period
<i>Listeria monocytogenes</i>	19112	50-100	Good-luxuriant	>=50 %	Good-luxuriant	>=50 %	35-37°C	24-48 Hours
<i>Escherichia coli</i>	25922	50-100	None-poor	0-10%	None-poor	0-10%	35-37°C	24-48 Hours
<i>Pseudomonas aeruginosa</i>	27853	50-100	None-poor	0-10%	None-poor	0-10%	35-37°C	24-48 Hours
<i>Enterococcus faecalis</i>	29212	50-100	None-poor	0-10%	None-poor	0-10%	35-37°C	24-48 Hours

### PACKAGING:

In pack size of 500 gm bottles.

### STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

### DISPOSAL

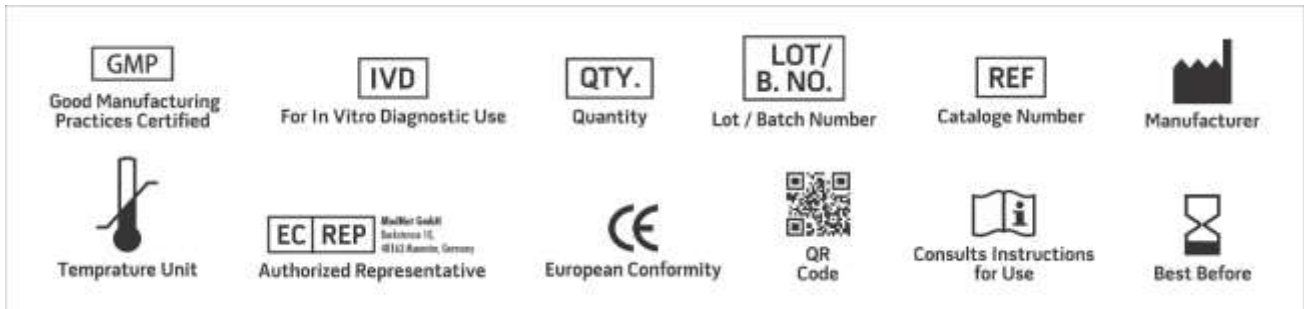
After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

### REFERENCES

- Hyslop N., St. G. and Osborne A. D., 1959, Vet. Rec. 71: 1082



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4. McBride M. E. and Girard F., 1960, J. Lab. Clin. Med., 55:153.
5. Vanderzant C. and Splittstoesser D. F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.
6. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
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**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
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