

## Listeria Identification Broth Base (PALCAM)

### Intended Use

Listeria Identification Broth Base (PALCAM) with added supplement is recommended for selective isolation and identification of *Listeria* species.

### Summary

Listeria Identification Broth also known as Polymyxin Acriflavin Lithium-chloride Ceftazidime Aesculin Mannitol (PALCAM) Broth is prepared as described by van Netten *et al.*, for selective enrichment of *Listeria* species. *Listeria monocytogenes* hydrolyze esculin, which is evidenced by blackening of the medium. This blackening by esculin-hydrolyzing bacteria results from the formation of 6,7 dihydroxycoumarin, which reacts with ferric ions that are present in the medium as ammonium ferric citrate. It does not ferment mannitol but the contaminants such as Enterococci and Staphylococci ferment mannitol and is indicated by the change of colour from red to yellow. Under strict microaerophilic conditions strict aerobes such as *Bacillus* and *Pseudomonas* species are inhibited. The addition of egg yolk (2.5% v/v) to Listeria Identification Agar Base, PALCAM has been reported to aid repair of damaged cells. A medium containing blood when overlaid on Listeria Identification Agar Base, PALCAM enables to differentiate and enumerate haemolytic *Listeria* species. Listeria Identification Agar Base is recommended by APHA for the examination of milk and foods.

### Principle

Peptone provides nitrogen, vitamins and other nutrients. High amounts of lithium chloride and added selective supplement inhibit accompanying micro flora and allow the growth of only *Listeria* species. The combination of mannitol and phenol red helps in the detection of mannitol fermentation while esculin and ammonium ferric citrate helps in the detection of esculin hydrolysis.

### Formula\*

Ingredients	g/L
Peptic Digest of Animal Tissue	23.0
Yeast Extract	5.0
Lithium Chloride	10.0
Esculin	0.8
Ammonium Ferric Citrate	0.5
D-Mannitol	5.0
Soya Lecithin	1.0
Polysorbate 80	2.0
Phenol Red	0.08
Final pH (at 25°C)	7.4 ± 0.2

\*Adjusted to suit performance parameters.

### Storage and Stability

Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

### Type of Specimen

Food and Dairy samples

### Specimen Collection and Handling

Ensure that all samples are properly labelled.

Follow appropriate techniques for handling samples as per established guidelines.

Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.

The samples must be stored and tested within the permissible time duration.

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

## Directions

1. Suspend 23.69 g of the powder in 500 mL purified / distilled water.
2. Heat if necessary, to dissolve the powder completely.
3. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
4. Cool to 45°C-50°C and aseptically add sterile reconstituted contents of 1 vial of Listeria Selective Supplement I (204120570005).
5. Mix well before dispensing.

## Quality Control

**Dehydrated Appearance:** Light pink coloured, homogenous, free flowing powder.

**Prepared Appearance:** Red coloured solution with heavy precipitate.

**Growth Promotion Test:** Growth promotion is carried out in accordance with the harmonized method of USP/EP/JP and growth is observed after an incubation at 30°C-35°C for 24 to 48 hours in microaerophilic condition.

**Growth Promoting Properties:** The test results observed are within the specified temperature and shortest period of time specified in the test, inoculating ≤100 cfu of appropriate microorganism at 30°C-35°C for 24 hours in microaerophilic condition.

**Indicative Properties:** The test results observed are within the specified temperature and time, inoculating ≤ 100 cfu of appropriate microorganism.

Organism (ATCC)	Growth	Colour of Medium
<i>Listeria monocytogenes</i> strain Li 23 (19114)	Good	Black
<i>Listeria monocytogenes</i> serotype 4b (19115)	Good	Black
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> (25923)	Inhibited	-
<i>Enterococcus faecalis</i> (29212)	Inhibited	-
<i>Micrococcus luteus</i> (10240)	Inhibited	-

**Note:** For good growth - Growth obtained on test media should not differ by a factor greater than 2 from calculated value for a standardized inoculum.

For inhibition no growth of test microorganism should occur.

## Interpretation of Results

Typical *Listeria* species form colonies that are approximately 2 mm in diameter, green-grey in colour with a black sunken center and a black halo against a red background.

## Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

## Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

## Reference

1. Van Netten P., Peralse I, Van de Mosdik A., Curtis G.D.W., Mossel D. A.A., 1989, Int. J. Food Microbiol., 8(4):299.
2. int Veld P.H. and de Boer E., 1991, Int. J. Food Microbiol., 13:295.
3. Van Netten P., van Gaal B. and Mossel D. A. A., 1991, Lett. Appl. Microbiol, 12:20.
4. Watkin J., Sleath K. P., J. Appl. Bacteriol., 50: 1-9, 1981.
5. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

**Product Presentation:**

<b>Cat No.</b>	<b>Product description</b>	<b>Pack Size</b>
201120230100	Dehydrated Culture Media	100 g
201120230500	Dehydrated Culture Media	500 g

**Disclaimer**

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.

---