

LISTERIA AGAR BASE PALCAM ISO 11290

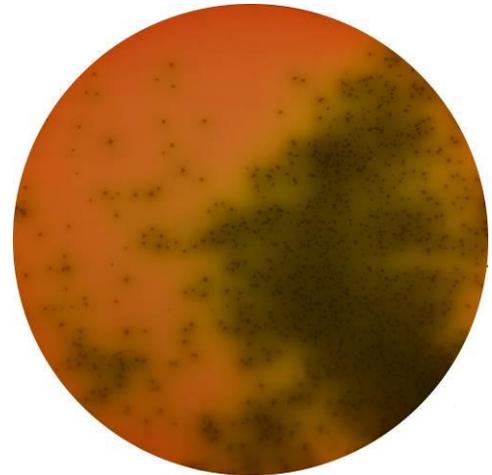
CAT Nº: 1141

Selective and differential medium for the detection of *Listeria spp*, particularly *Listeria monocytogenes*

FORMULA IN g/l

| | | | |
|------------------|-------|-------------------------|-------|
| Peptones | 23.00 | Esculin | 0.80 |
| Lithium Chloride | 15.00 | Glucose | 0.50 |
| Mannitol | 10.00 | Ferric Ammonium Citrate | 0.50 |
| Sodium Chloride | 5.00 | Phenol Red | 0.08 |
| Yeast Extract | 3.00 | Bacteriological Agar | 10.00 |
| Maize Starch | 1.00 | | |

Final pH 7.2 ± 0.2 at 25°C



Listeria monocytogenes
ATCC 19111

PREPARATION

Suspend 34.4 grams of the medium in 500 ml of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121°C for 15 minutes. Cool to 45-50°C and aseptically add one vial of Palcam Listeria Selective Supplement (Cat. 6004), previously reconstituted in 5 ml of sterile distilled water. Homogenize gently and dispense into Petri dishes. The prepared medium should be stored at 8-15°C. The color is red.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

Palcam Listeria Selective Supplement (Cat. 6004)

(1 vial for 500 ml of the medium)

| | |
|--------------------------|--------|
| Ceftazidime | 10 mg |
| Polymyxin B Sulfate..... | 5 mg |
| Acryflavine | 2.5 mg |

Caution: Listeria Chromogenic Selective Supplement contains Ceftazidime and it is very toxic if swallowed, inhaled or comes into contact with skin. Wear gloves and eye face protection.

USES

LISTERIA AGAR BASE PALCAM, used with supplements, is a selective and differential medium for *Listeria spp*. It is recommended by ISO 11290 for the detection and enumeration of *Listeria monocytogenes* in food products and clinical samples, and can also be used for environmental samples.

It is used after a primary and secondary enrichment stage, using Listeria Enrichment Broth Base Fraser (Cat.1120). It allows the easy differential diagnosis of *Listeria monocytogenes* using a double-system indicator: Esculin/Iron and Mannitol/Phenol red. Inoculate sample and incubate at a temperature of 35 ± 2°C and observe after 24 - 48 hours.

All *Listeria* species hydrolyze the esculin to esculetin, which reacts with iron ions producing a blackening of the medium.

Lithium chloride included in the medium, along with Ceftazidime, Polymyxin B Sulfate and Acryflavine from the supplement, inhibit the growth of the non-*Listeria* accompanying bacteria present in foods, which can hydrolyze the esculin. Peptones and Maize starch provide a rich nutrient base for growth. Yeast extract is the source of vitamins, particularly of the B-group. Glucose is the fermentable carbohydrate. Ferric ammonium citrate improves the growth of *L. monocytogenes*.

The Mannitol / Phenol red differentiation system is used to differentiate *Listeria spp* that do not ferment mannitol from other species that occasionally grow in the medium such as enterococci or staphylococci. Differentiation is achieved by the acid increase in pH causing the Phenol red indicator to change the color of the colonies or medium from red or gray to yellow. Confirmation of *Listeria* is done by biochemical and serological identifications tests.

MICROBIOLOGICAL TEST

The following results were obtained from type cultures in the performance of the medium, with the respective supplements added, after incubation at a temperature of 35± 2°C after 24-48 hours.

| Microorganisms | Growth | Colony Color |
|--|--------|--|
| <i>Listeria monocytogenes</i> ATCC 19111 | Good | Green-gray colonies with black center and black halo |
| <i>Listeria innocua</i> ATCC 33090 | Good | Green-gray colonies with black center and black halo |
| <i>Enterococcus faecalis</i> ATCC 29212 | Null | - |
| <i>Staphylococcus aureus</i> ATCC 25923 | Null | - |

According to ISO 11133 37±1 °C / 44±4 h/ (Productivity and Selectivity)

| Microorganisms | Inoculum (cfu) | Productivity Quantitative | Selectivity Qualitative |
|--|----------------------------------|---------------------------|-------------------------|
| <i>Listeria monocytogenes</i> ATCC 13932 | 10 ² | pr ≥ 0,5 | |
| <i>Escherichia coli</i> ATCC 8739 | 10 ⁴ /10 ⁶ | | Inhibited |
| <i>Enterococcus faecalis</i> ATCC 29212 | 10 ⁴ /10 ⁶ | | Inhibited |

Reference Media Productivity: TSA

BIBLIOGRAPHY

ISO NORMATIVE 11290-2:Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of *Listeria monocytogenes* -- Part 2: Enumeration method.

Van Netten, P., I. Perales A. Van de Moosalijk G.D.W. Curtis and DAA Mossel 1989 Liquid and solid selective differential media for the detection and enumeration of *L. monocytogenes* and other *Listeria spp*. Int. J. of Food Microbiol 8: 299-317.

Farber JMDW Warburton and T. Babiuk, 1994 Isolation of *Listeria monocytogenes* from all food and environmental samples.



STORAGE

Once opened keep powdered medium closed to avoid hydration.

