75977 PALCAM Listeria Selective Agar (Listeria identification Agar (PALCAM))

Selective agar for differential diagnosis, for the isolation and detection of *Listeria monocytogenes* from fecal and biological material, food and heavily contaminated environmental specimens, acc. to Van Netten.

Composition:

Ingredients	Grams/Litre
Peptone	23.0
Starch	1.0
Sodium chloride	5.0
D-Mannitol	10.0
Ammonium ferric citrate	0.5
Esculin	0.8
Glucose	0.5
Lithium chloride	15.0
Phenol red	0.08
Agar	13.0

Final pH 7.0 +/- 0.2 at 25°C.

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Directions :
Dissolve 68.8 g in 1 litre distilled water. Sterilize by autoclaving at 121°C for 15 minutes. Cool down to 50°C and add the dissolved contents of 2 vials PALCAM Listeria Selective Supplement (02336). The completed broth may appear hazy due to starch.
Inoculate by spreading the sample on the surface of the medium and incubate at 30 to 37°C for up to 48 hours preferably under microaerophilic conditions.

Principle and Interpretation:
PALCAM Listeria Selective Agar is also known as Polymyxin Acriflavine Lithium chloride Ceftazidime Aesculin Mannitol Agar and is formulated as described by van Netten, et al.
Peptone provides nitrogen, sulfur and cofactors. Sodium chloride is for osmotic balance. The addition of lithium chloride and antibiotics like polymyxin-B-sulfate, ceftazidim and acriflavine suppress the growth of the gram-negative bacteria and most gram-positive bacteria. Lithium chloride gives the medium selectivity due the high salt tolerance of Listeria. The antibiotics are added to the PALCAM Listeria Selective Supplement according to Van Netten, et al. (03396). *Listeria monocytogenes* hydrolyses esculin to esculetin and glucose. Esculetin forms a black complex with iron(lll)ions. Therefore, *Listeria monocytogenes* produces grey-green coloured colonies with a black centre and halo. Mannitol-positive accompanying bacteria such as staphylococci and enterococci grow as yellow colonies, if they are not inhibited. The yellow color is released from the pH change by fermentation due to the indicator phenol red. To ensure the bacteria species, biochemical or serological tests can be carried out. The addition of Egg Yolk Emulsion (17148) to the medium may aid in the recovery of damaged Listeria. A modification to PALCAM medium in which incubated plates are overlaid with medium containing blood enables haemolytic Listeria species to be differentiated and enumerated. Depending upon the type of sample used, selective enrichment broth like L-PALCAM Listeria Selective Enrichment Broth (75976), UVM Listeria Selective Enrichment Broth, modified (94485) or Listeria Enrichment Broth according to FDA/IDF-FIL (62353) is used prior to inoculation onto PALCAM Listeria Selective Agar.

Cultural characteristics after 48 hours at 35°C.

Organisms (ATCC)	Growth	Colony characteristics
Listeria monocytogenes (19118)	+++	grey-green with a black centre and halo
Listeria innocua (33090)	+++	grey-green with a black centre and halo
Staphylococcus aureus (25923)	-/+	yellow with yellow halo
Enterococcus faecalis (29212)	-/+	grey with a brown green halo
Escherichia coli (25922)	-/+	grey with a brown green halo

References:

1. C.P.G.L. Gunasinghe et al., Detection of Listeria species in a range of meat products, Lett. Appl. Microbiol. 18, 156 (1994)
2. P. van Netten et al., ibid., 12, 20 (1991)
3. E.H. Lennette, A. Ballows, Hausler, W.J.Jr., and Shadomy, H.J. Manual of Clinical Microbiology. 4th ed. 1985 Washington D.C.: American Society for Microbiology.
4. Mac Faddin, Jean F. 1985 Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. I, Baltimore, MD.: Williams & Wilkins.
5. Van Netten, P., I. Perales, A. Van de Moosdijk, D.M. Curtis, D.A.A. Mossel 1989 Liquid and solid differentiation media for enumeration of L. monocytogenes and other Listeria spp. J. Food Microbiol. 8:299-316.
6. P.H in't Veld and E. de Boer, Int. J. Food Microbiol., 13, 295 (1991)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.