Palcam Agar Base
SKU: 700003280, 700003281, 700003282, 700003283
NCM0111

Intended Use
Palcam Agar Base is used with supplements as a selective and differential medium for the detection and isolation of *Listeria monocytogenes* from food and environmental samples. Palcam Agar Base is not intended for use in the diagnosis of disease or other conditions in humans.

Description
Palcam Agar was developed by Van Netten *et al* in 1989 as an improved selective differential medium for the isolation of *Listeria monocytogenes* from food and environmental specimens. Improved selectivity is achieved by the combination of antibiotic supplements and microaerobic incubation. The double indicator system of esculin hydrolysis and mannitol fermentation aids differentiation of *Listeria* spp from enterococci and staphylococci which can be confused with *Listeria* spp on other types of culture media. Palcam Agar is listed within Annex E of ISO 11290-1:2017 as a suitable second selective agar.

Typical Formulation

Columbia Peptone Mix	23.0 g/L
Sodium Chloride	5.0 g/L
Corn Starch	1.0 g/L
Yeast Extract	3.0 g/L
Glucose	0.5 g/L
Mannitol	10.0 g/L
Esculin	0.8 g/L
Lithium Chloride	15.0 g/L
Ferric Ammonium Citrate	0.5 g/L
Phenol Red	0.08 g/L
Agar	12.0 g/L

Final pH: 7.2 ± 0.2 at 25°C
Formula is adjusted and/or supplemented as required to meet performance specifications.

Supplements
NCM4041 or 700004898 Palcam PAC Supplement

Precaution
Refer to SDS

Preparation
1. Suspend 71 grams of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool to 45-50°C
5. Aseptically add 2 vials of NCM4041-0.5* or 700004898 Palcam PAC Supplement, each reconstituted using 5 mL sterile deionized/RO water. Mix well.

*Larger vials may be available. Please see appropriate supplement data sheet for availability and preparation instructions.

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Test Procedure
Several procedures may be used to isolate *Listeria monocytogenes* and *Listeria* spp. on PALCAM Agar Base. Refer to the appropriate references for specific guidelines.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and beige.

Prepared Appearance: Prepared medium is opaque with no precipitate, purple to red.

Expected Cultural Response: Cultural response on Palcam Agar Base prepared with Palcam Supplement incubated aerobically at 37 ± 1°C and examined for growth after 24 - 48 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results	
		Recovery	Reaction
Candida albicans ATCC® 10231	$>10^4$	Complete to partial inhibition	--
Enterococcus faecalis ATCC® 29212	$>10^4$	Complete inhibition	--
Escherichia coli ATCC® 25922	$>10^4$	Complete inhibition	--
Listeria monocytogenes ATCC® 7644	50-200	>50%	Blackening
Listeria monocytogenes ATCC® 19114	50-200	>50%	Blackening
Listeria monocytogenes ATCC® 19116	50-200	>50%	Blackening
Listeria monocytogenes ATCC® 19111	50-200	>50%	Blackening
Listeria monocytogenes ATCC® 13932	50-200	>50%	Blackening
Staphylococcus aureus ATCC® 25923	$>10^4$	Complete inhibition	--

The organisms listed are the minimum that should be used for quality control testing.

Results
Listeria is presumptively indicated by grey-green colonies with a black precipitate following incubation for 24 - 48 hours at 37°C on Palcam Agar Base. Consult references for complete identification and confirmation of *Listeria* spp. Rapid slide and macroscopic tube tests can be used for definitive serological identification. Colonies of mannitol-fermenting organisms such as staphylococci, appear yellow with a yellow halo.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container.

Limitations of the Procedure
Due to nutritional variation, some strains may grow poorly or fail to grow on this medium.

Storage

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Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References

1. Van Netten, P., Perales, I., Curtis, G.D.W., Mossel, D.A.A. (1989) Liquid and solid selective differential media for the enumeration of *L. monocytogenes* Int. J. Food Micro. 8 (4) 299-316.
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3. Monk, J. D., R. S. Clavero, L. R. Beuchat, M. P. Doyle, and R. E. Brackett. 1994. Irradiation inactivation of *Listeria monocytogenes* and *Staphylococcus aureus* in low and high fat, frozen and refrigerated ground beef. J. Food Prot. 57:969-974.
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5. Grau, F. H., and P. B. Vanderlinde. 1992. Occurrence, numbers, and growth of *Listeria monocytogenes* on some vacuum-packaged processed meats. J. Food Prot. 55:4-7.
6. L'association francaise de normalisation (AFNOR). 1993. Food Microbiology-Detection of *Listeria monocytogenes*-Routine Method, V 08-055. AFNOR, Paris, France.
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8. International Dairy Federation. 1990. Milk and milk products – Detection of *Listeria monocytogenes*. IDF Provisional International Standard no. 143. International Dairy Federation, Brussels.

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