42800 M-PA Agar, Base
NutriSelect® Basic

M-PA Agar Base is recommended for the detection and isolation of *Pseudomonas aeruginosa* by membrane filter technique.

Composition:

Ingredients	Grams/Litre
L-Lysine hydrochloride	5.0
Sodium chloride	5.0
Yeast extract	2.0
Xylose	2.5
Sucrose	1.25
Lactose	1.25
Ferric ammonium citrate	0.8
Sodium thiosulphate	6.8
Phenol red	0.08
Agar	15.0

Final pH 7.1 +/- 0.2 at 25°C

Store dehydrated powder below 30°C in a tightly closed container and the prepared medium at 2-8°C. Protect from moisture and light by keeping container in a low humidity environment. Use before expiry date on the label.

Appearance(color): Light yellow to yellow to Red, free flowing powder
Gelling: Firm, comparable with 1.5% Agar gel
Color and Clarity: Orange red coloured clear to slightly opalescent gel forms in Petri plates

Directions:
Suspend 39.68 g in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add rehydrated contents of 1 vial of M-PA Selective Supplement.

Principle and Interpretation:
A variety of methods have been used for the enumeration of *P. aeruginosa* from water samples, some of which have been more widely accepted than others. The most-probable number (MPN) procedures result in satisfactory recovery levels of *P. aeruginosa* but are not usable for the testing of large-volume water samples and lack precision. These two deficiencies are eliminated in membrane filter (MF) techniques.
Many of the membrane filter media used for the recovery of P. aeruginosa lacked specificity and were of limited value when large heterogeneous microbial flora was present in the water samples. Levin and Cabelli devised M-PA Agar as a selective membrane filter medium for Pseudomonas aeruginosa (1). 1 This formulation incorporated four antimicrobics, kanamycin, nalidixic acid, sulfapyridine and cycloheximide, which render the medium moderately selective. The original medium was modified by raising the pH (2) and altering the content or concentration of ingredients (3). This media is included in part 914 C, Membrane Filter Technique for *P.aeruginosa* (Tentative) in the 16th / 19th Edition of Standard Methods for the Examination of Water and Waste water (4).

Yeast extract, lysine and carbohydrates provide nitrogeneous compounds, energy sources and vitamins required for bacterial metabolism. The salts provide essential ions & Sodium chloride maintains osmotic equilibrium. Kanamycin inhibits protein synthesis in gram-positive organisms (5). Cycloheximide (FD202) inhibits fungal flora. Nalidixic acid blocks replication of susceptible gram-negative bacteria (5). Phenol red is the pH indicator which turns yellow in response to acids produced as a result of the fermentation of the carbohydrates.
Following filtration of the water sample through a sterile 47 mm, 0.45 µm gridded filter, place the membrane filter on the surface of a plate of M-PA-C Agar taking care to avoid the entrapment of bubbles between the agar and filter surface. Incubate for 24 hours at 41.5±0.5°C in an aerobic atmosphere. Optimal colony density on membrane filters is 20-200 colonies. All colonies on the filter are counted when the density is 2 or fewer per square; the average of 10 squares is determined when the count is 3-10 colonies per square and the average of 5 squares is determined when the count is 10-20 colonies per square. The average count per square is multiplied by 100 times the reciprocal of the dilution to give colonies per ml.

Cultural characteristics observed after an incubation of up to 72 hrs at 41.5 ± 0.5°C with added M-PA Selective Supplement

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Color of the media
Escherichia coli (25922/ 00013)	>=10^3	-	
Klebsiella pneumoniae (13883/-)	>=10^3	-	
Pseudomonas aeruginosa (27853/-)	50-100	+++	Pink
Salmonella Typhi (6539/-)	>=10^3	-	
Staphylococcus aureus (25923/-)	>=10^3	-	

References:

1. Levin M. A. and Cabelli V. J., 1972, Appl. Microbiol., 24:864.
2. Carson L. A., Peterson M, J., Favero M. S., Doto I. L., Collins D. E. and Levin M. A., 1975, Appl. Microbiol., 30:935.
3. Dutka B. J. and Kwan K. K., 1977, Appl. Environ. Microbiol., 33:240.
4. Greenberg A. E., Trussell R. R. and Clesceri L. S., (Eds.), 1985, Standard Methods for the Examination of Water and Wastewater, 16th / 19th Ed., APHA, Washington, DC.
5. Estevez R. A., 1984, Bacteriologic plate media: review of mechanisms of action. Lab. Med. 15:258.

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.