74173 NutriSelect™ Prime Preston Broth, Base

For selective enrichment and cultivation of Campylobacter species in environmental, animal feed and animal faeces samples. The composition and performance criteria of this medium are as per the specifications laid down in ISO 10272-1:2017.

Composition:

Ingredients*	Grams/Litre
Peptose #	10.0
Peptone	10.0
Sodium chloride	5.0
Agar	1.0

Final pH 7.4 +/- 0.2 at 25°C

* Formula adjusted, standardized to suit performance parameters.
# Equivalent to Enzymatic digest of animal tissues

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

Appearance: Faint yellow, faint beige to faint brown colored, homogeneous, free flowing powder.

Color and Clarity: light yellow to light brown colored clear solution.

Directions:

Directions
Suspend 25 grams in 945 ml of purified/distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add 50 ml of sterile lysed horse blood and reconstituted contents of one vial of Preston Selective Supplement (Cat. No. 38390). Mix well and dispense into sterile tubes or flasks as desired.

Principle and Interpretation:

Balton and Robertson (1) described this as a selective medium for the cultivation of *Campylobacter* species. It is recommended by APHA (6) for enrichment of thermotolerant *Campylobacter* species from foods. Preliminary incubation of the medium complete with antibiotics for 4 hours at 37°C was recommended to aid resuscitation of injured organisms followed by 42°C for 18- 48 hours (2). This medium is in accordance with the specifications laid down in ISO 10272:2017(4).
Peptose and Peptone in the medium provide nitrogen and carbon source, long chain amino acids, vitamins, minerals and other necessary growth factors. Sodium chloride maintains osmotic balance. Preston Selective Supplement (Cat. No. 38390) contains antibacterial and antifungal agents. Polymyxin B is active only against gram-negative bacteria and Proteus species are sometimes resistant. Trimethoprim usually inhibits gram-negative bacteria. Rifampicin is also active against gram-negative organisms. Amphotericin B acts as antifungal agent.
Direct plating without enrichment is adequate for fresh faecal samples, faecal contents or intestinal specimens as high numbers of the organisms may be anticipated. For food samples enrichment is required. Humphrey (1989) suggested that pre-enrichment at 37°C should be continued for 4 hours and that addition of all antibiotics should be delayed until the 4 hours pre- enrichment had been completed. Enrichment medium with rifampicin was recommended in parallel with similar plating medium.
The *Campylobacter* species grow well in microaerobic conditions i.e. in 5% O2 at 42°C in about 18-48 hours. Addition of about 4 drops of glycerol to a filter paper kept within the jar/container will hamper confluent and swarming growth of *Campylobacter* (2).

Specimen Collection and Handling:
Follow appropriate techniques for sample collection and processing as per guidelines (4).

Limitations:
1. Further biochemical testing is required for complete identification.
2. Some strains may show poor growth due to nutritional variations.

Cultural characteristics observed with added 25ml sterile lysed horse blood and Preston Selective Supplement, after an incubation at 41.5±1°C for 24±2 hours (5% O2 + 10% CO2 + 85% N2).

Organisms (ATCC/WDCM)	Inoculum [cfu]	Growth
Campylobacter coli (43478/00004)	≤100	+++ (>10 charact. colonies on mCCDA)
Campylobacter jejuni (29428/00156)	≤100	+++ (>10 charact. colonies on mCCDA)
Escherichia coli (25922/00013)	≥10^4	- (total inhibition on TSA)
Escherichia coli (8739/00012)	≥10^4	- (total inhibition on TSA)
Bacillus cereus (10876)	≥10^4	- (total inhibition on TSA)

References:

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 14th Ed., Washington D.C. (1978)
2. Balton F.J. and Robertson L., J. Clin. Pathol. , 35:462 (1982)
3. Humphrey T. J., J. Appl. Bacteriol. 66,119-126 (1989)
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
5. ISO 10272-1:2017, Microbiology of the food chain- Horizontal method for detection and enumeration of Campylobacter species- Part I: Detection method.
6. Jorgensen,J.H., Pfaller , M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. Manual of Clinical Microbiology, 11th Edition. Vol. 1. (2015)
7. Salfinger Y., and Tortorello M.L. Fifth (Ed.), Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C. (2015)

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.