TM 073 – COLUMBIA BROTH BASE

INTENDED USE
For cultivation of fastidious microorganisms from clinical sources.

PRODUCT SUMMARY AND EXPLANATION
Morello and Ellner in 1969 devised a liquid medium for the recovery of microorganisms from blood cultures. This medium was devised from Columbia Blood Agar Base previously formulated by Ellner et al. While studying they found that Columbia Broth was superior to a commonly used general-purpose broth for faster growth of *Staphylococcus aureus, Escherichia coli,* viridans Streptococci and *Enterococcus* groups. In the formulation the increased concentration of cystine is provided for improved recovery of both aerobic and anaerobic microorganisms from blood specimens. Columbia Broth Base supplemented with SPS (Sodium Polyanethol Sulphonate), a polyanionic anticoagulant inhibits complement and lysozyme activity, interferes with phagocytosis and inactivates aminoglycosides. The presence of CO_2 is stimulatory for many organisms. It is an excellent blood culture medium. It differs from the agar base in that the cornstarch is omitted to reduce opalescence and salts have been included.

Tube media should be inoculated with 1 to 2 drops of the liquid specimen using a sterile pipette. Swab specimens may be inserted into the broth after inoculation of the plated media. Liquid media should be reduced by placing the tubes with caps loosened under anaerobic conditions for 18-24 hours prior to inoculation for anaerobic incubation. Alternatively, it can be reduced immediately before use by boiling with caps loosened and cooling to room temperature with tightened caps, before inoculation. Growth in tubes is indicated by presence of turbidity compared to an uninoculated control. If growth appears, cultures should be subcultured onto appropriate media. Addition of SPS is inhibitory to Neisseria species, and thus 1.2% gelatin addition may counteract the inhibitory effect.

COMPOSITION

Ingredients	Gms / Ltr
Peptone special	10.000
Biopeptone	10.000
Heart infusion powder	3.000
L-Cysteine hydrochloride	0.100
Dextrose (Glucose)	2.500
Sodium chloride	5.000
Magnesium sulphate	0.100
Ferrous sulphate	0.020
Sodium carbonate	0.600
Tris (hydroxymethyl) aminomethane	0.830
Tris (hydroxymethyl) aminomethane hydrochloride	2.860

PRINCIPLE
Medium contains peptone special, biopeptone and heart infusion powder to support luxurious growth of the organisms. Dextrose is added as a carbon and energy source. The medium is buffered with tris buffer. The addition of salts was found to be beneficial for the recovery of organisms. L-Cysteine HCL is the reducing agent. Magnesium & iron are added to facilitate organism growth.

INSTRUCTION FOR USE

- Dissolve 35.01 grams in 1000 ml purified / distilled water.
- Heat to boiling to dissolve the medium completely.
- If desired, SPS (Sodium polyanethol sulphonate) may be added in a final concentration of 0.01%.
- Dispense into tubes and sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Cool to 45-50°C.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder.
Appearance of prepared medium : Light amber coloured, clear to slightly opalescent solution, may have a fine precipitate.
pH (at 25°C) : 7.5±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Incubation Temperature	Incubation Period
Clostridium perfringens	12924	50-100	Good-luxuriant	35-37°C	18-48 Hours
Neisseria meningitidis	13090	50-100	Good-luxuriant	35-37°C	18-48 Hours
Staphylococcus aureus subsp. aureus	25923	50-100	Good-luxuriant	35-37°C	18-48 Hours
Streptococcus mitis	9811	50-100	Good-luxuriant	35-37°C	18-48 Hours
Streptococcus pyogenes	19615	50-100	Good-luxuriant	35-37°C	18-48 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

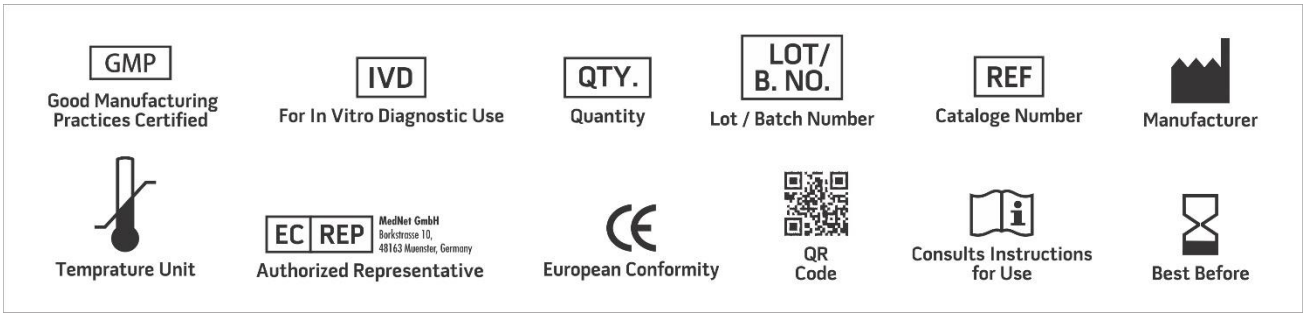
Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. Ellner P. D., Stoessel C. J., Drakeford E. and Vasi F., 1966, Am. J. Clin. Pathol., 45:502
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. Morello J. A. and Ellner P. D., 1969, Appl. Microbiol. 17:68.
5. Reller, Murray and MacLowry, 1982, Cumitech 1A, Blood cultures II, Coord. Ed., ASM, Washington D.C.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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