ARENA
BioScien

Block 5, Street 9 inside The Ismailia free zone. Ismailia- Egypt
Post Code-41511
Tel.-Fax: +202 21813500/ +202 21813600
Mob.: +2 01211550941/ +2 01119225860
E-mail: sales@arenabioscientific.com
Website: www.arenabioscien.com

Columbia Blood Agar Base

For preparation of blood agar, chocolate agar and for preparation of various selective and identification media and isolation of organisms from clinical and non clinical samples.

REF: BS.1/CMP01.100.0100	100 Gram	REF: BS.1/CMP01.250.0250	250 Gram
REF: BS.1/CMP01.500.0500	500 Gram		

CLINICAL SIGNIFICANCE

Columbia Blood Agar Base was developed by Ellner et al. (1) and is formulated with a special peptone that promotes rapid and luxuriant growth of both fastidious and non-fastidious microorganisms. The medium also enhances colonial morphology, improves pigment production, and produces more distinct haemolytic reactions. Fildes demonstrated that supplementation of Nutrient Agar with a sheep blood digest provided the essential growth factors required to support the growth of Haemophilus influenzae (2,3). The addition of bacitracin renders the enriched Columbia Agar Medium selective for the isolation of Haemophilus species from clinical specimens, particularly those obtained from the upper respiratory tract (4). Columbia Agar Base serves as a basal medium for the preparation of blood-containing media and for various selective media formulations supplemented with different combinations of antimicrobial agents. Corn starch functions as an energy source and additionally neutralizes toxic metabolites. Sheep blood facilitates the detection of haemolytic activity and supplies heme (X factor), which is essential for the growth of many bacterial species. However, because it lacks V factor (nicotinamide adenine dinucleotide), Haemophilus influenzae, which requires both X and V factors, is unable to grow on this medium. When supplemented with sterile serum, Columbia Agar Base provides an effective medium for the virulence testing of Corynebacterium diphtheriae. By following the established procedure for this organism, distinct toxin-antitoxin precipitation lines can be observed within 48 hours. Since many pathogenic microorganisms require carbon dioxide for optimal growth, culture plates may be incubated in an atmosphere containing approximately 3–10% CO_2. Precautions: Cultures of Brucella species are highly infectious and should be handled with extreme care and incubated in an atmosphere containing 5–10% CO_2. Campylobacter species exhibit optimal growth at 42°C under microaerophilic conditions. Plates supplemented for the isolation of Gardnerella should be incubated at 35°C for 48 hours in an atmosphere containing 7% CO_2 (2).

MEDIA COMPOSITION

Item	Formula per liter of medium
- Peptone	23.00 gm
- Corn starch	1.00 gm
- Sodium chloride	5.000 gm
- Agar	15.00 gm

Final pH 7.3± 0.2 at 25 °C

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- Respect country requirement for waste disposal.

- In case of contact with eyes or skin; rinse immediately with plentyof soap and water. In case of severe injuries; seek medical advice immediately.

S56: dispose of this material and its container at hazardous orspecial waste collection point.
S57: use appropriate container to avoid environmental contamination.
S61: avoid release in environment.

STORAGE AND STABILITY

BioScien Columbia Blood Agar Base should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature andsources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

PREPARATION

Suspend 44.0 grams of in 1000 ml purified/ distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C before adding heat sensitive compounds. For Blood Agar: Add 5% v/v sterile defibrinated sheep blood to sterile cool base. For Chocolate Agar: Add 10% v/v sterile defibrinated sheep blood to sterile cool base. Heat to 80°C for 10 minutes with constant agitation. The medium can be made selective by adding different antimicrobials to sterile base. For Brucella species: Add rehydrated contents of 1 vial of NPBCVN Selective Supplement (FD005) to 500 ml sterile molten base. For Campylobacter species: Add rehydrated contents of 1 vial of Blaser-Wang Selective Supplement (FD006) or Butzler Selective Supplement (FD007) or Skirrow Selective Supplement (FD008) or VTCA Selective Supplement (FD090) or Butzler VI Selective Supplement (FD106) to 500 ml sterile molten base along with rehydrated contents of 1 vial of Minerals Growth Supplement (FD009) and 5-7% v/v horse or sheep blood. For Gardnerella species: Add rehydrated contents of 1 vial of GNA Selective Supplement (FD056) to 500 ml sterile molten base. For Cocci: Add rehydrated contents of 1 vial of NC Selective Supplement (FD030) or NNP Selective Supplement (FD031) or CO Selective Supplement (FD119) to 500 ml sterile molten base.

Deterioration

The color of ***BioScien*** Columbia Blood Agar Base is Cream to yellow homogeneous free flowing powder. prepared medium Basal medium: Light amber coloured clear to slightly opalescent gel. After addition of 5%w/v sterile defibrinated blood : Cherry red coloured opaque gel forms in Petri plates. If there areany physical changes for powder or signs of deterioration (shrinking,cracking, or discoloration), and contaminations for hydrated media, discard the medium.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile cups
- Sterile petri-dishes
- Incubator

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed with added 5% w/v sterile defibrinated blood,after an incubation at 35-37°C for 18-48hours

Oranism	Growth	Haemolysis
Neisseria meningitidis ATCC 13090	*luxuriant*	*none*
Staphylococcus aureus subsp. aureus ATCC 25923	*luxuriant*	*Beta/gamma*
Staphylococcus epidermidis ATCC 12228	*luxuriant*	*gamma*
Streptococcus pneumoniae ATCC 6303	*luxuriant*	*alpha*

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positiveand negative control included in each run. If control values are foundoutside the defined range, check the system performance. If controlstill out of range please contact ***BioScien*** technical support.

REFERENCES

1.Noble W. C., 1962, J. Clin, Pathol., 15:552.
2.Hansen N. H., 1962, J. Appl. Bacteriol., 25:46.
3.Hayes P. R., 1963, J. Gen. Microbiol., 30:1.
4.Schuber J. H., Edwards P. R. and Ramsere C. H., 1959, J. Bacteriol., 77:648.
5.Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
6.U.S. Food and Drug Administration, 1995, Bacteriological Analytical Manual, 8th Ed., AOAC International, Gaithersburg, Md.
7.Atlas R. M., 1993, Handbook of Microbiology of Microbiological Media, CRC Press, Boca Raton, Fla.
8. Isenberg, H.D. 8.Snavely J. G. and Brahier J., 1960, Am. J. Clin. Pathol., 33:511.
9.Murray P. R., Baron J. H., Jorgensen J. H., Pfaller M. A., Yolken R. H., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.
10.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition. 11.Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual Clinical Microbiology, 11th Edition. Vol.1

SYMBOLS IN PRODUCT LABELLING

IVD	For in-vitro diagnostic use	Σ	Number of <n> test in the pack
LOT	Batch Code/Lot number	⚠	Caution
REF	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		